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ENVIRONMENTAL ASSESSMENT
OF THE
HAZARDOUS MINE FEATURES
AT THE DANDY, LISBON, ROBERTS, CM&M
MARIE, AND SWAMP FROG URANIUM CLAIMS
ON RED PRYOR MOUNTAIN
CARBON COUNTY, MONTANA

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ENVIRONMENTAL ASSESSMENT OF THE HAZARDOUS MINE FEATURES AT THE DANDY, LISBON, ROBERTS, CM&M, MARIE AND SWAMP FROG URANIUM CLAIMS ON RED PRYOR MOUNTAIN CARBON COUNTY, MONTANA

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1 NEED FOR PROJECT

Uranium was explored for and mined on the south slopes of Red Pryor Mountain during the uranium boom of the late 1950's and early 1960's, but as the uranium market deteriorated in the late 1960's mining activity ceased. These activities resulted in the development of many underground workings having adit entrances and with some having vertical shafts. There is essentially no activity presently, however, the claimants of the lode claims are continuing to keep the required annual claim assessment work up to date.

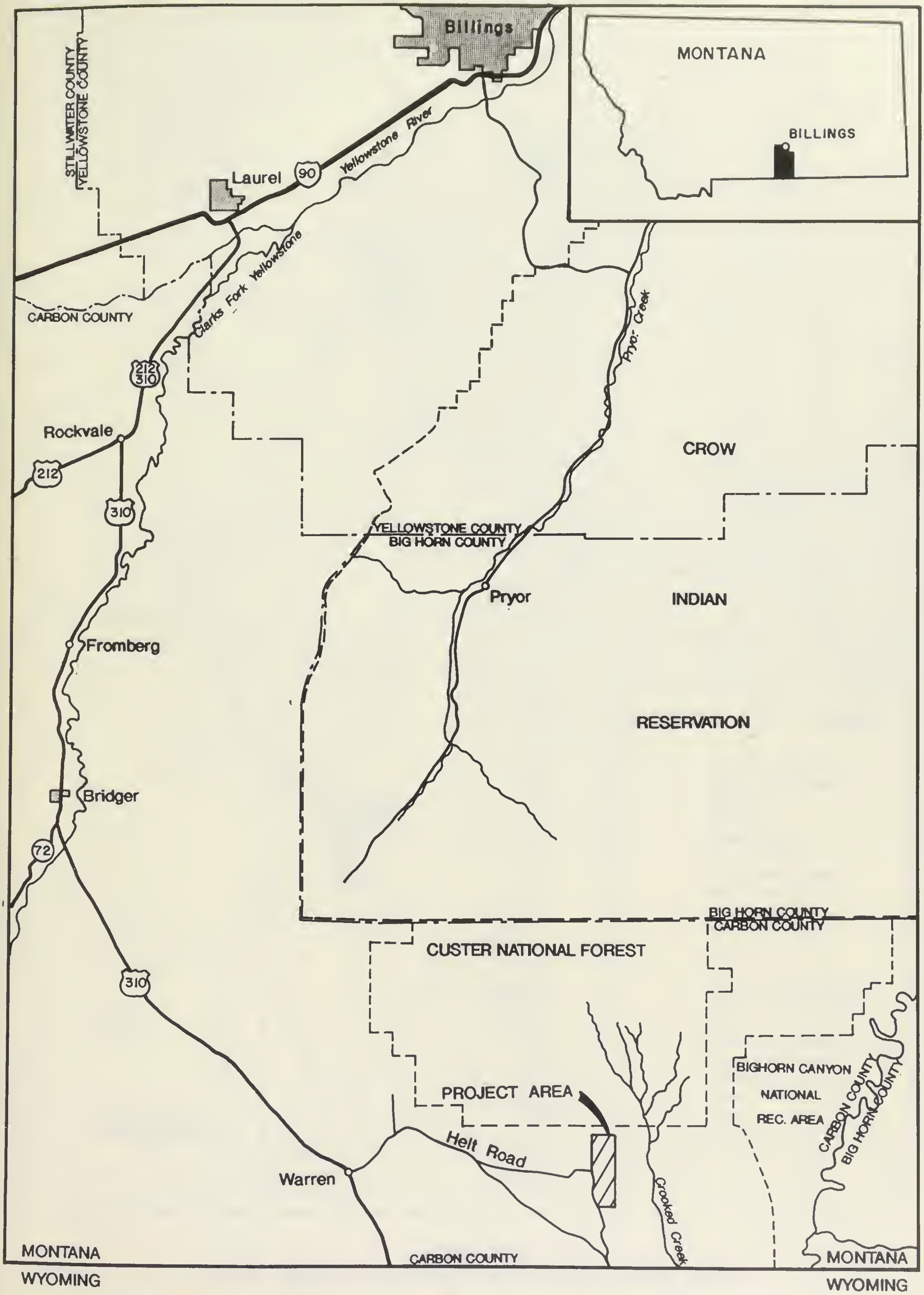
During the last several decades the Pryor Mountain area has become a popular recreation area for sportsmen and recreationists using off-road vehicles (motor cycles and ATV's). At the time when the exploration and mining activities were occurring several access routes and minor trails were constructed in the area primarily by using dozers. Several of these access routes and trails lead to the open and unprotected adits and one access route passes dangerously close to a large vertical air shaft.

The need for this hazard abatement project is to protect human health and safety from the dangerous mine openings, vertical drop-offs, and other hazardous features. No apparent environmental or ecological problems exist or will be affected by the proposed action.

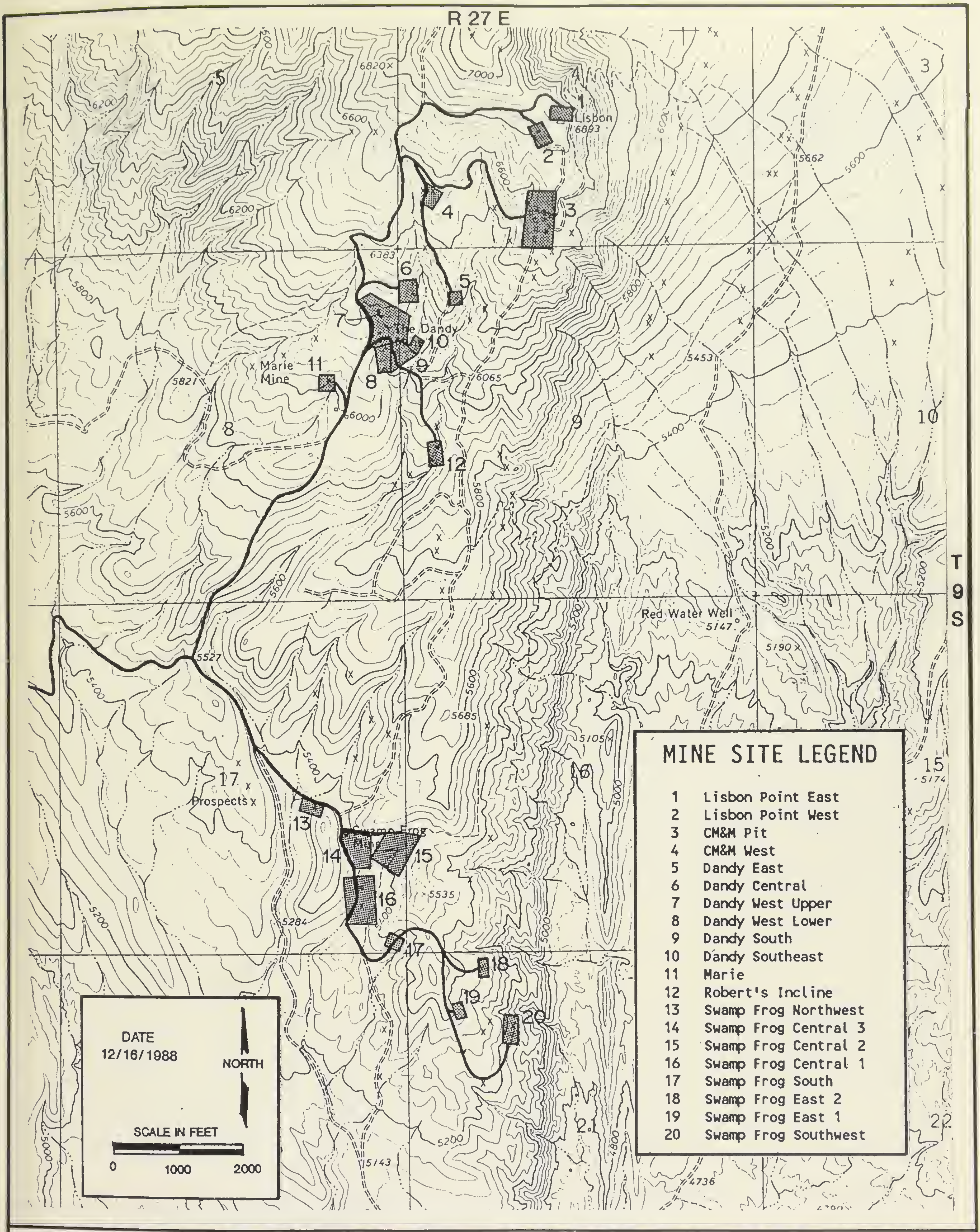
2 PROJECT LOCATION

The Red Pryor Mountain uranium area is located in southern Carbon County as shown on the Vicinity Map, Figure 1. The mine sites are depicted on the Site Map, Figure 2. The geographic location of each site is as follows:

SWAMP FROG SITES	T9S, R27E,	Section 17 Section 20 Section 21	SW4; NE4; and NW4.
LISBON POINT SITES	T9S, R27E,	Section 4	NE4SW4 and NW4SE4.
ROBERTS INCLINE SITE	T9S, R27E,	Section 9	NW4SW4.
MARIE SITE	T9S, R27E,	Section 8	SE4NE4.
CM & M PIT SITE	T9S, R27E,	Section 4	SE4SW4.
CM & M WEST SITE	T9S, R27E,	Section 4	SW4SW4.
DANDY SITES	T9S, R27E,	Section 8 Section 9	NE4; and NW4.



VICINITY MAP OF RED PRYOR MOUNTAIN URANIUM AREA
Figure 1



SITE MAP
Pryor Mountain Uranium Sites Within Project Area

Figure 2

Access to the project area is via Highway 310 from Laurel, Montana, 50 miles south to the abandoned townsite of Warren, Montana. Turn right and proceed east 2 miles on paved road to the BLM Helt Road (a dirt and gravel access road). Proceed east on Helt Road 10 miles to the project area. Figure 2 shows access to the individual site areas.

3 DESCRIPTION OF THE PROBLEM

A small uranium exploration and mining district was abandoned in the late 1950's and early 1960's which left major abandoned mine-related impacts to health, safety, and the general welfare in Carbon County, Montana. These impacts include vertical drop-offs, excavated pits, open adits and shafts, and waste piles. Impacts of lesser significance include shallow exploration pits and open exploration drill holes. Little or no evidence of subsidence is manifested at the mine sites.

The open adits, open shafts, open drill holes, vertical drop-offs, and exploration pits all present an immediate danger to visitors, and creates a hazard to recreational users, livestock, and wildlife. Except for some dilapidated wooden barricades which do not cover the adit openings, there is virtually nothing to inhibit entrance into the mines. Open drillholes are especially dangerous to livestock and wildlife who may accidentally step into one and sustain an injury.

Several waste piles are situated in ephemeral drainages, providing sources of pollution during periods of surface water runoff. Rills are frequent evidence of erosion from the waste piles at most sites. These waste piles have little or no vegetation cover and vegetation growth is inhibited by the virtual lack of a suitable topsoil medium. Most of these waste piles stand at steep angles such that they are not traversable by humans and/or livestock.

3.1 SWAMP FROG SITES

The Swamp Frog area consists of six (6) separate sites. These sites have been given the following names: Swamp Frog East #1, Swamp Frog East #2, Swamp Frog Northwest, Swamp Frog Southeast, Swamp Frog South, and Swamp Frog Central. These sites include an open pit with a 30 foot precipice, eight (8) open adits (generally 8 feet high by 8 feet wide and extending from a few feet to several hundred feet into the hillside), six (6) collapsed adits coupled with numerous excavations having steep highwalls, and many waste dumps scattered throughout the project area. There are also several drillholes scattered throughout the project area including two (2) which remain unsealed. Photos 1 through 25, Appendix A, depict the hazards present at these six sites.

3.2 LISBON POINT SITES

The Lisbon Point area consists of two (2) sites called Lisbon Point West and Lisbon Point East. Large open adits (10 feet high by 10 feet wide) exist at each site. These adits extend more than 50 feet into the hillside. Waste dumps and excavations associated with the open adits are located at both sites. A small exploration pit with highwalls is located above the eastern adit site. Photos 26 through 31, Appendix A, depict the hazards present at these two sites.

3.3 ROBERT'S INCLINE SITE

The Robert's Incline site consists of one open adit (8 feet high by 10 feet wide) extending for several hundred feet into the hillside. The adit is not

barricaded and is beginning to cave-in in several areas. Portions of a large waste dump are located within an ephemeral drainage. There all several drillholes surrounding this site of which one (1) remains open. Photos 32 and 33, Appendix A, depict the hazards present at this site.

3.4 MARIE SITE

The Marie site consists of one (1) open adit (8 feet high by 10 feet wide) extending for several hundred feet into the hillside. This adit has a dilapidated wood barricade across the adit entrance. The associated waste dump is located within an ephemeral drainage. Several drillholes are scattered throughout the site area, but none are known to be open. Photos 34 and 35, Appendix A, depict the hazards present at this site.

3.5 CM&M SITES

The CM&M area consists of two (2) sites. They are named the CM&M Pit and CM&M West.

At the CM&M Pit site there is an excavation pit 30 feet wide by 8 feet deep and 160 feet long. There is also an open adit (7 feet high by 12 feet wide) extending over 300 feet into the hillside. In addition, there is a exploration pit approximately 10 feet deep. Two (2) waste dumps are associated with the excavation pit and adit. One of these dumps borders an ephemeral drainage and is actively being eroded. A third, smaller waste pile is associated with the small exploration pit. Photos 36 through 39, Appendix A, depict the hazards present at this site.

The CM&M West site consists of an open adit (8 feet high by 8 feet wide) extending 35 feet into the hillside. At the back of the adit a vertical shaft 12 feet in diameter extends upward 13 feet to the ground surface. There is no barrier to prevent humans, livestock, or wildlife from falling into this shaft. In addition, there is a collapsed adit and excavation with dangerous highwalls above the shaft. There are also several waste dumps associated with the adits and excavation. Photos 40 through 43, Appendix A, depict the hazards present at this site.

3.6 DANDY SITES

The Dandy area consists of six (6) sites. These sites are called: Dandy Southeast, Dandy South, Dandy Central, Dandy East, Dandy West Upper, and Dandy West Lower. These six (6) sites include eleven (11) open adits (generally 8 feet high by 8 feet wide and extending for an unknown distance into the hillside), one (1) excavation pit with dangerous highwalls and two (2) excavated areas having steep highwalls. There are also two (2) vertical air shafts (each 12 feet in diameter by 20 feet deep) located at the Dandy West site. One of the shafts is located adjacent to a BLM public access road. In addition, there are also numerous waste dumps and drillholes located throughout the project area. Several of these waste dumps are located in ephemeral drainages and are actively being eroded. Photos 44 through 62, Appendix A, depict the hazards present at these sites.

4 PROJECT BACKGROUND

4.1 SITE HISTORY

Following World War II the United States Government began an aggressive campaign to discover, mine, and concentrate uranium minerals. This prompted four men from the Billings and Pryor, Montana areas to prospect for uranium ore in the Pryor Mountain range of south central Montana. On Labor Day, 1955 George Guay, Leo Eres, Corwin Rule and Ben Helgeland discovered the first uranium mineralization on Red Pryor Mountain[1]. The find was made public in the Winter of 1956 initiating a claim staking rush and prompting further discoveries of uranium ore in the Pryor Mountain area. Prior to publicization of the original uranium mineralization Guay, Eres, Rule, and Helgeland had claimed a large portion of the area for themselves and had done extensive exploratory work. Within four years of the original uranium mineralization discovery the "Uranium Boom" ended due to a poor uranium market and no mining has been done since that time.

Over the years a number of people have bought and sold their rights to the unpatented mining claims. Currently, James Stoick of Billings, Montana, is the primary owner of the majority of the claims in the area. These include the claims where the Swamp Frog, Marie, Dandy, CM&M Pit, CM&M West, and Lisbon Point sites are currently located. Mr. Stoick has kept the annual assessment work current since the last mining was done in the area in order to retain ownership of the unpatented claims. At the present time there are no immediate plans to begin mining the Pryor Mountain area for uranium. The price of uranium ore must increase substantially and/or other uranium markets must become available in order for mining to become feasible. This does not seem likely in the near future.

4.2 THE URANIUM DEPOSITS

The principal uranium mineral found within the Pryor Mountains is Tyuyamunite which may be described as a calcium uranium vanadate containing roughly 38% to 55% U_3O_8[1]. Tyuyamunite is a finely crystalline, bright yellow powder appearing as a thin film within highly silicified fractures and/or solidified and unsolidified limestone collapse breccia. These mineralized fractures and breccia are located within the upper 200 to 250 feet of the Madison limestone of Mississippian age[2]. The Madison limestone is nearly 600 feet thick in this area.

The collapse breccia may be attributed to the period prior to the deposition of the overlying Amsden Formation (Pennsylvanian age) when the upper exposed portion of the Madison limestone was eroded resulting in abundant solution

---

[1] Hauptman, C.M., 1956, *Uranium in the Pryor Mountains area of southern Montana and northern Wyoming*, Uranium and Modern Mining, v.3, n.11, pp. 14-21.

[2] Jarrard, L.D., 1957, *Some Occurrences of Uranium and Thorium in Montana*, Montana Bureau of Mines and Geology, Miscellaneous Contribution No. 15, pp. 10-37.

caverns and rough, irregular topography. These caverns ultimately collapsed by roof failure due to continued solution erosion and/or excessive roof weight caused by the deposition of the overlying Amsden Formation. The majority of the Amsden Formation has since eroded from the Pryor Mountain area exposing the Madison limestone. This has allowed the mineralized portion of the Madison limestone to be located near the surface which has prompted its discovery and allowed the uranium ore to be extracted. Figure 3 shows the location of the project area relative to the Madison formation.

Fractures within the limestone may be attributed to adjacent thrust fault activity which resulted in four upthrown blocks that formed the Pryor Mountains[1]. The eastern side of each block has been upthrown resulting in gently dipping western slopes and steep eastern slopes.

The mineralized uranium deposits were formed either by ascending hydrothermal groundwater or descending meteoric waters concentrating the uranium in its present locations[1]. The mineralization is fairly recent as evidenced by several discoveries of undisturbed bones of small rodent like mammals which are coated with thin films of Tyuyamunite[1]. The uranium deposits within the Pryor Mountains are generally 2" to 8" thick and up to 50 feet in length and are located along the flanks of a north-south trending gently plunging anticline[1].

The uranium ore has the potential to be of a very high grade. One 20-ton shipment of uranium ore from this area contained 6% U_3O_8, but the ore is usually in the range from 0.5% to 0.8% U_3O_8 with $CaCO_3$ ranges from 2% to 85% and are usually greater than 70%[2].

4.3 CLAIMS, MINING ACTIVITY AND PRODUCTION

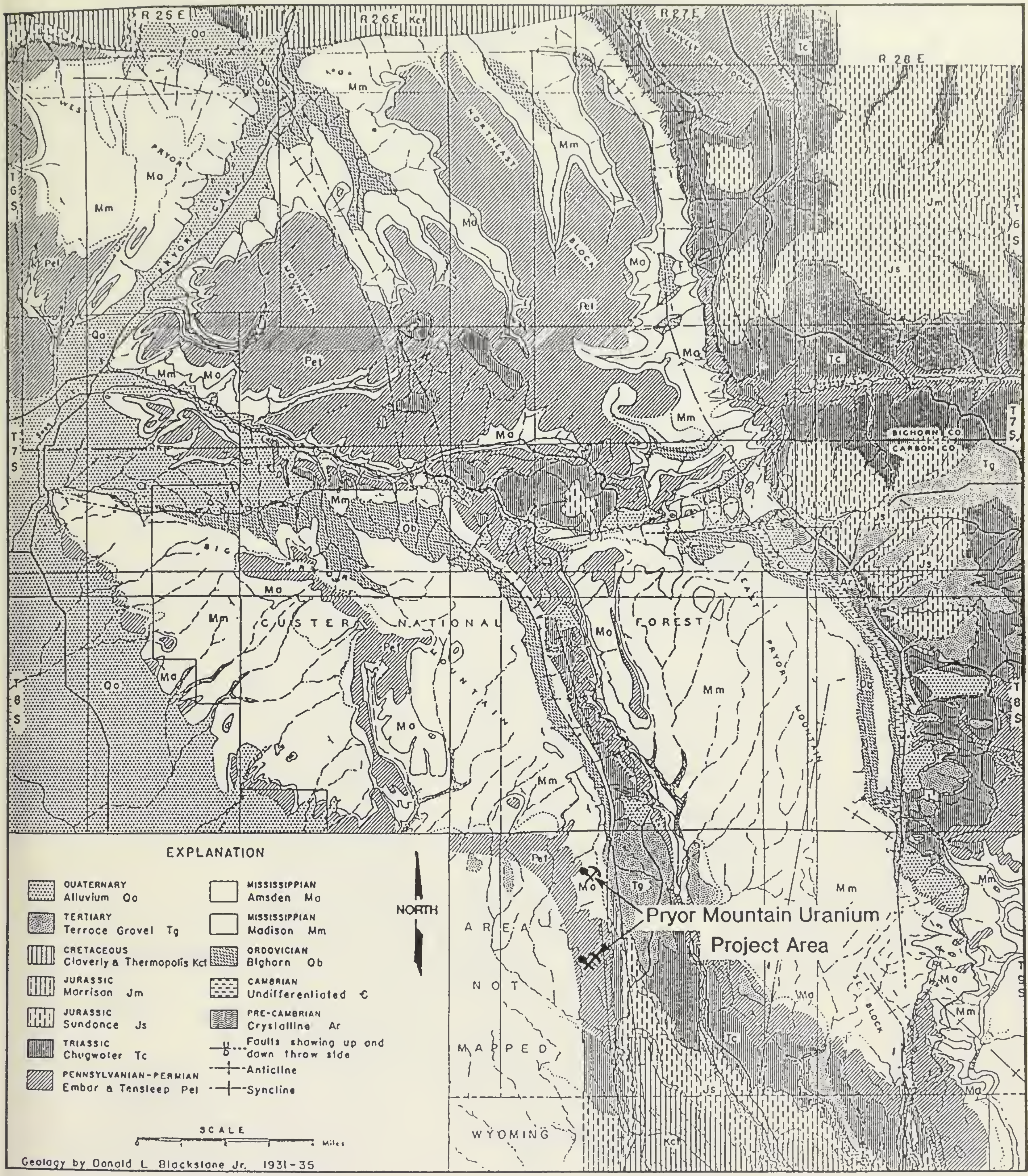
4.3.1 Mineral Claimants and Surface Ownership

There is only one mineral claimant upon whose claims this project will influence. This claimant is:

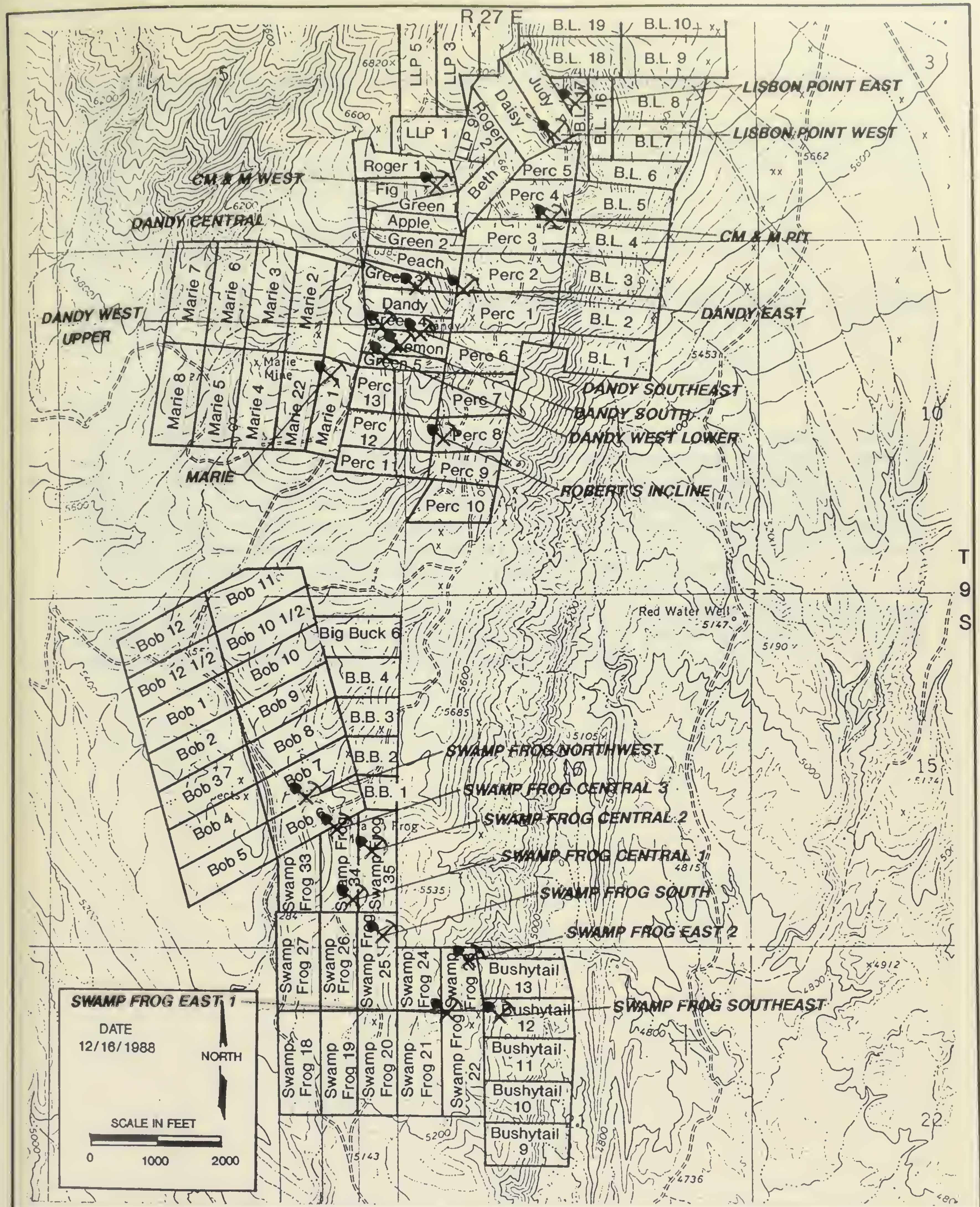
James J. and Frances Stoick
P.O. Box 2074
Billings, Montana 59103
(406) 252-1438

Albert F. Stoick (brother to James Stoick) also has a partial interest in a portion of the uranium claims. Consent to perform field investigations was granted by James Stoick. Figure 4 shows the location of the claims in the project area and individual site locations.

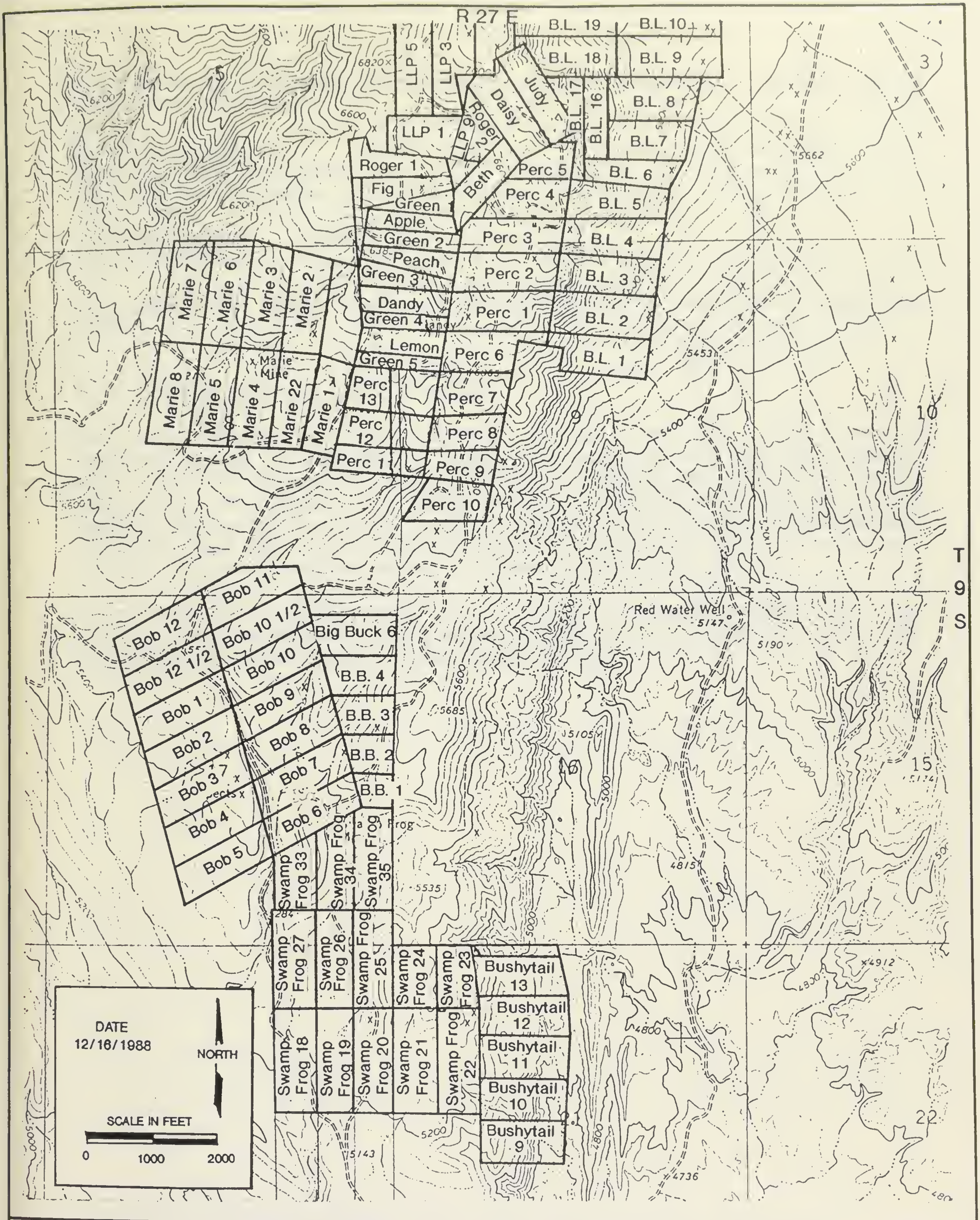
Adjacent claims to the project area are not planned to be disturbed. The adjacent claimants have not been contacted with regards to this particular project.



GEOLOGY OF PRYOR MOUNTAIN AREA, CARBON COUNTY, MONTANA
Figure 3



LODE CLAIMS AND PROJECT SITE LOCATIONS
Figure 4



LODE CLAIMS AND PROJECT SITE LOCATIONS
Figure 4

The surface is controlled by the Bureau of Land Management. The BLM contact person was previously:

Lloyd Fusselman
Bureau of Land Management
Billings Resource Area
810 E. Main
Billings, Montana 59105
(406) 657-6262

The current BLM contact person is **Ken Hanify** at the same address and phone number.

4.3.2 Mining Activity and Production[3]

Over 1,000 lode mining claims have been located in the area. Many have been maintained since the mid-1950's. Most of the existing road and trail network and the old bulldozed pits are due to the extensive prospecting efforts of 1955-1969. Ore deposits are found through the examination of the surface geology and through the use of a geiger counter or scintillometer. Both detect radiation from the decaying uranium atoms. More recent exploration methods involve the use of a truck-mounted diamond-bit drilling rig.

No ore has been shipped from the area since 1966. From 1955-1966, 7,955 tons of ore were produced with a gross value of $326,646 (Frank McGinley, 1971, the Atomic Energy Commission, personal communication).

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[3] Bureau of Land Management, Nov. 1983, *Final Environmental Impact Statement, RESOURCE MANAGEMENT PLAN, Billings Resource Area*, page 82.

5 AFFECTED ENVIRONMENT

The proposed plans to seal, backfill, and/or fence the dangerous openings and conditions at all the project sites should not have any affect on soils, vegetation, wildlife, water, or air quality because the reclamation will only involve moving mining waste from one disturbed area to another using existing roads and installing protective fence.

A cultural resource investigation and subsequent report was completed on the project area by Historical Research Associates. No other site specific investigations have been performed on the project sites but the Bureau of Land Management has prepared a final Environmental Impact Statement[3] and a Record of Decision on that EIS[4]. In addition the United States Forest Service has also prepared a Draft Environmental Impact Statement on the general area[5].

5.1 LAND FEATURES AND VEGETATIVE COVER

The topography varies from a low of 5300 feet MSL at the Swamp Frog sites to 6800 feet at the Lisbon Point sites. The present vegetation at the project sites is sparse and consists of sagebrush, small junipers, and some grasses.

The rock-filled waste dumps, excavated pits, collapsed adit depressions, and the roads used for mining purposes currently do not support vegetation. A number of open adits, adit excavations, pits, and collapsed adits will be backfilled and regraded with material from their respective adjacent waste dumps. These reclaimed areas and those areas disturbed during reclamation will be reseeded with native vegetation.

Those project sites in which the dangerous openings and conditions are to be fenced will not disturbed any additional ground and therefore, will not be revegetated.

5.2 WATER QUALITY

No perennial streams exist at any of the project sites and groundwater at all the project sites is at a sufficient depth to prevent disturbance during reclamation. None of the dumps located in the ephemeral drainages will be relocated during the proposed hazard abatement program.

5.3 FISH AND WILDLIFE RESOURCES

No fish or wildlife resources will be affected by the proposed action. Backfilling the dangerous openings and reducing the steep slopes attributed to uranium mining will reduce the possibility of wildlife sustaining injury or death.

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[4] Bureau of Land Management, Sept. 1983, *Record of Decision, Billings Resource Management Plan*, Final E.I.S.

[5] U.S. Forest Service, *Draft EIS, Custer National Forest, Land and Resource Management Plan*, undated (circa 1983).

5.4 PRYOR MOUNTAIN WILD HORSE RANGE

The Pryor Mountain Wild Horse Range is located east of the Crooked Creek Drainage on East Pryor Mountain over two miles from the nearest project site considered in this report. Therefore, the Wild Horse Range will not be affected by this reclamation project.

5.5 THREATENED OR ENDANGERED PLANTS AND ANIMALS

There have been no documented cases of any threatened or endangered plants and/or animals in the vicinity of the proposed project sites. Therefore, no threatened or endangered plants or animals will be impacted by reclamation.

5.6 CULTURAL RESOURCES

A report on the cultural resources found in the vicinity of the project sites to be reclaimed on Red Pryor Mountain was prepared by Historical Research Associates (H.R.A.) from Missoula, Montana[6]. H.R.A. was under contract with the Montana Department of State Lands to investigate the cultural resources in this area and a two-member team from their office completed a draft report in mid-December of 1987.

Figure 5 shows the portion of Red Pryor Mountain in which the proposed reclamation project sites are located. The maximum possible area to be disturbed for each project site is shown on the figure. Also shown on the figure are the locations where cultural resources were found. These include tepee rings, sparsely scattered lithic flakes, and a possible rock shelter[6]. The rock shelter is located near the open adit at the Lisbon Point East project site. H.R.A. seems quite confident that the shelter's inaccessible location within the limestone cliff insures that it will not be disturbed during reclamation of the site. In addition, the cultural material found along the access route (shown on Figure 5) to the Robert's Incline site is sparse and there appears to be no reason to avoid it according to the H.R.A. report. All of the other cultural resource sites lie well outside the maximum disturbance area for each reclamation site and therefore will not be affected.

5.7 LAND USE

All of the uranium mines proposed for reclamation are located on Bureau of Land Management lands managed by the Billings' B.L.M. office. The primary land uses are recreational activities including: motorcycle riding, snowmobiling, hiking, and sightseeing. The proposed reclamation will have no adverse effects on these activities and will, in fact, promote their safety by removing hazards that are not apparent until after a tragedy has occurred.

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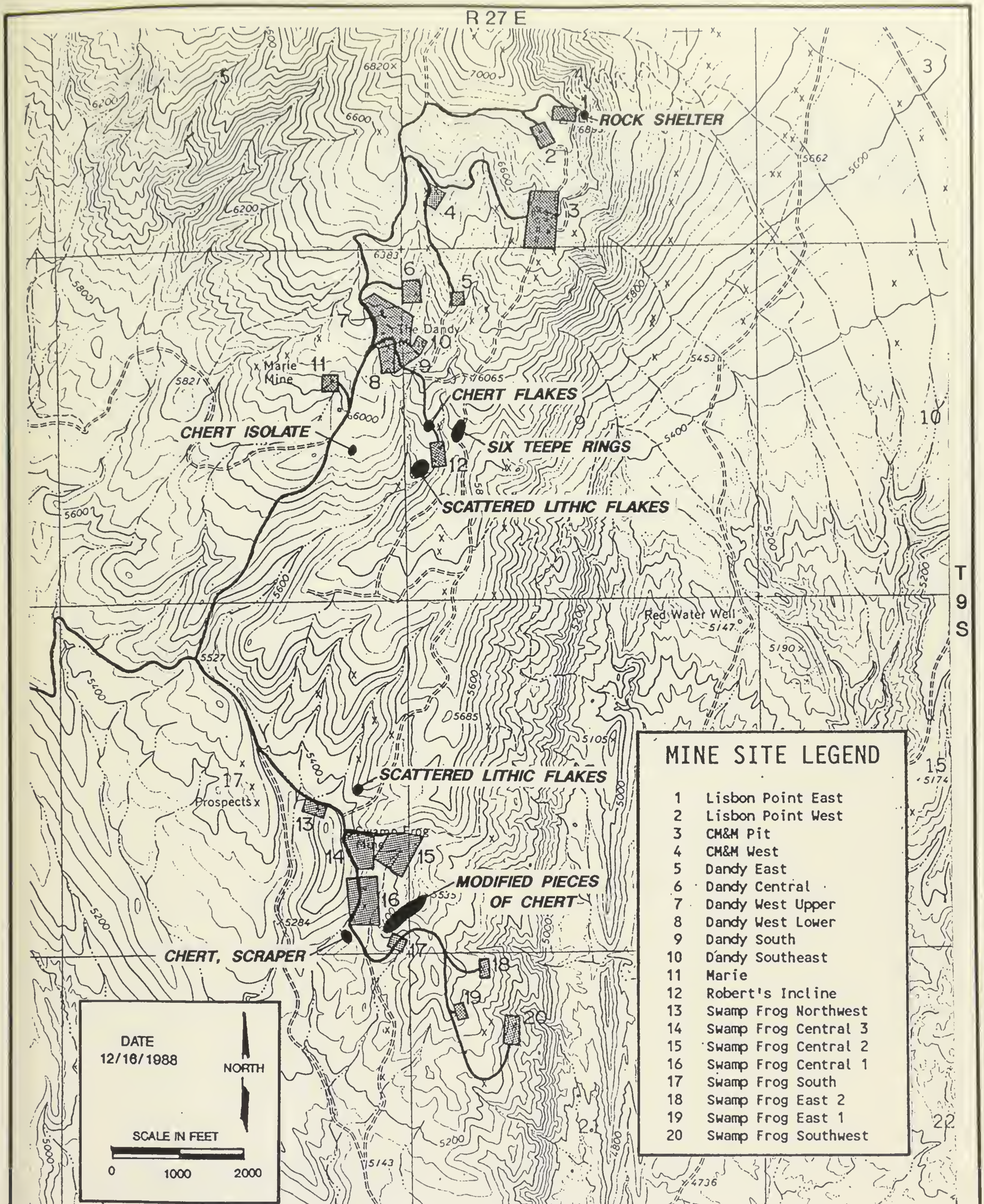
[6] Historical Research Associates, Missoula, Montana, *Report of Findings of a Cultural Resource Inventory of Uranium Mine Reclamation Areas in the Pryor Mountains*, Carbon County, Montana, Dec. 11, 1987.



RESULTS OF H.R.A. CULTURAL RESOURCE INVENTORY FOR A PORTION OF THE PRYOR MOUNTAIN AREA, CARBON COUNTY, MONTANA

Figure 5

5.8 SOCIOECONOMICS

The proposed reclamation projects will provide a small economic boost to the local economy since a local contractor will probably be awarded the contract. The proposed mitigation of the hazardous conditions at these sites will increase the aesthetics of the area and may prevent serious or fatal injury to the people and wildlife for whom the lands were reserved.

6 PROPOSED ACTION AND PROJECT COST

6.1 PROPOSED ACTION

The proposed action is approval of funding as requested for the Pryor Mountain AML Project. This approval would allow the following actions at each proposed site.

6.1.1 Swamp Frog Sites

Refer to Site Construction Plans, Appendix B, Sheets 1 through 8.

1. Backfill three (3) adits with excavated entrances, and backfill and recontour two (2) collapsed adits with waste pile material and/or borrow material.

2. Backfill and seal two (2) drill holes.

3. Regrade smooth in place nine (9) waste dumps.

4. Construct four (4) fence barriers above two (2) pits and two (2) adits having highwalls greater than 4 feet in height.

5. Construct five (5) fence enclosures with gate surrounding five (5) adits and one (1) shaft.

6. Dispose of all debris littering the site.

7. Seed, fertilize and mulch all designated areas.

6.1.2 Lisbon Point Sites

Refer to Site Construction Plans, Appendix B, Sheets 9 and 10.

1. Install locking gates at entrance to two (2) adits (one adit with an excavated area).

2. Backfill and regrade one (1) exploration pit.

3. Regrade one (1) waste dump.

4. Construct one (1) fence barrier above one (1) adit having highwalls greater than 4 feet in height.

5. Seed, fertilize and mulch all designated areas.

6.1.3 Robert's Incline Site

Refer to Site Construction Plans, Appendix B, Sheet 11.

1. Install locking gate at entrance to one (1) adit.

2. Construct one (1) fence barrier above 1 adit having highwall greater than 4 feet in height.
3. Backfill and seal one (1) drill hole.
4. Dispose of all debris littering the site.

6.1.4 Marie Site

Refer to Site Construction Plans, Appendix B, Sheet 12.

1. Install locking gate at entrance to one (1) adit.
2. Construct one (1) fence barrier above one (1) adit having highwalls greater than 4 feet in height.
3. Dispose of all debris littering the site.

6.1.5 CM&M Pit Site

Refer to Site Construction Plans, Appendix B, Sheet 13.

1. Backfill one (1) excavation pit with waste pile material and/or borrow material.
2. Install locking gate at entrance to one (1) adit.
3. Backfill and regrade one (1) exploration pit.
4. Regrade one (1) large waste dump to blend with the surrounding topography.
5. Regrade smooth in place portions of one (1) large waste dump.
6. Construct one (1) fence barrier above one (1) adit having highwalls greater than 4 feet in height.
7. Seed, fertilize and mulch all designated areas.

6.1.6 CM&M West Site

Refer to Site Construction Plans, Appendix B, Sheet 14.

1. Construct one (1) fence enclosure with gate surrounding one (1) adit and one (1) vertical shaft.
2. Backfill one (1) collapsed adit with waste pile material and/or borrow material.
3. Regrade one (1) waste dump and associated area to blend with the surrounding topography.

4. Seed, fertilize and mulch all designated areas.

6.1.7 Dandy Sites

Refer to Site Construction Plans, Appendix B, Sheets 15 through 20.

1. Install locking gates at entrances of four (4) adits.
2. Construct one (1) backfill barricade and backfill one (1) vertical shaft with waste pile material and/or borrow material.
3. Install a closure over one (1) air shaft with reinforced concrete cap and air vent pipe.
4. Reslope vertical drop-offs adjacent to one (1) collapsed adit and one (1) excavated area with waste material and regrade to blend into surrounding natural terrain.
5. Construct four (4) fence barriers above seven (7) adits having highwall greater than four feet in height.

6.2 PROJECT COSTS

Project Inspection Fees (5 months @ $8,000/month)		$ 40,000.00

6.2.1 Swamp Frog Sites

1. Contractor mobilization	$ 10,000.00	
2. Backfill 3 adits and entrances- 1,050 cy	4,500.00	
3. Backfill and recontour 2 collapsed adits- 300 cy	600.00	
4. Regrade 9 waste dumps- 6,600 cy	9,900.00	
5. Construct 4 highwall fence barriers- 490 L.F.	1,470.00	
6. Construct 5 adit and shaft fence enclosures- 1,750 L.F.	5,250.00	
7. Backfill and seal 2 drill holes-	600.00	
8. Dispose of all debris-	500.00	
9. Revegetate- 2.9 acres	8,700.00	
SWAMP FROG TOTAL		$ 41,520.00

6.2.2 Lisbon Point Sites

1. Contractor mobilization-	$ 1,000.00
2. Construct and install 2 adit gates-	6,000.00
3. Backfill 1 exploration pit- 100 cy	300.00
4. Construct 1 adit fence enclosure- 170 L.F.	510.00

5.	Regrade 1 waste dump- 100 cy	200.00	
6.	Revegetate- 0.20 acres	600.00	
	LISBON POINT TOTAL		$ 8,610.00

6.2.3 Robert's Incline Site

1.	Contractor mobilization-	$ 1,500.00	
2.	Construct and install 1 adit gate-	3,000.00	
3.	Construct 1 highwall fence barrier- 240 L.F.	720.00	
4.	Backfill and seal 1 drill hole-	300.00	
5.	Dispose of all debris-	400.00	
	ROBERT'S INCLINE TOTAL		$ 5,920.00

6.2.4 Marie Site

1.	Contractor mobilization-	$ 1,500.00	
2.	Construct and install 1 adit gate-	3,000.00	
3.	Construct 1 highwall fence barrier- 125 L.F.	370.00	
4.	Dispose of all debris-	200.00	
	MARIE TOTAL		$ 5,070.00

6.2.5 CM&M Pit Site

1.	Contractor mobilization-	$ 2,000.00	
2.	Construct and install 1 adit gate-	3,000.00	
3.	Backfill 1 excavation pit- 1,800 cy	5,400.00	
4.	Backfill and regrade 1 exploration pit- 25 cy	50.00	
5.	Construct 1 highwall fence barrier- 160 L.F.	480.00	
6.	Regrade 2 waste dumps- 1,400 cy	4,200.00	
7.	Revegetate- 1.4 acres	4,200.00	
	CM AND M PIT TOTAL		$ 19,330.00

6.2.6 CM&M West Site

1.	Contractor mobilization-	$ 1,500.00	
2.	Backfill 1 collapsed adit- 200 cy	800.00	
3.	Regrade 1 waste dump and designated areas- 1,000 cy	1,500.00	
4.	Construct 1 adit and shaft fence enclosure- 200 L.F.	600.00	
5.	Revegetate- 0.70 acres	2,100.00	
	CM AND M WEST TOTAL		$ 6,500.00

6.2.7 Dandy Sites

1.	Contractor mobilization-	$ 2,000.00	
2.	Construct and install 4 adits gates-	12,000.00	
3.	Construct barricade and backfill 1 shaft- 500 cy	3,000.00	
4.	Construct and install 1 air shaft concrete cap closure-	25,000.00	
5.	Backfill and regrade 1 collapsed adit and 1 excavated area- 4,000 cy	8,000.00	
6.	Construct 4 highwall fence barriers- 1,070 L.F.	3,200.00	
7.	Construct 2 adit fence enclosures- 700 L.F.	2,100.00	
8.	Backfill 3 adit openings and recontour 2 adit entrances- 700 cy	2,100.00	
9.	Regrade 5 waste dumps and designated areas- 3,300 cy	6,600.00	
10.	Backfill and seal 1 drill hole-	300.00	
11.	Dispose of all debris-	500.00	
12.	Revegetate - 1.70 acres	5,100.00	
	DANDY TOTAL		$ 69,900.00
	TOTAL PROJECT COST		**$196,850.00**

7 ALTERNATIVES TO THE PROPOSED ACTION

1. No Action - leave the existing hazards as they are.
2. Install warning signs at selected hazardous features.
3. Install warning signs at each hazardous feature.
4. Install gate closures on open adits which may or may not be combined with warning signs on other hazardous features.
5. Install fences around all hazardous features (i.e. do not backfill any of the hazards)
6. Some combination of the above proposed actions.

8 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

There will be no significant environmental consequences resulting from the recommended action or any of the alternatives. The proposed action greatly reduces the threat of injury or death to the people or wildlife visiting the area. In addition, in certain cases the aesthetics of the land will be enhanced. The alternatives to the proposed action, as listed in Section 7 above, are in the order of increasing mitigation to the hazards existing at the sites.

9 SUMMARY

The purpose of the recommended action is to mitigate the numerous visible and hidden hazards scattered throughout the proposed project area. These hazards include but are not limited to: open adits, open drill holes, pits with highwalls, and open shafts. These hazards are directly related to uranium mining done in the Pryor Mountain area between 1956 to 1966. Following mining, the area was abandoned with the adits and shafts remaining open as they appear today. These abandoned uranium mine features present an attractive nuisance to the people using the land.

Considering the close proximity of the Bureau of Land Management's public lands to a major population center (i.e. Billings) the project area receives a significant number of recreationists each year. As stated earlier in this report there are numerous safety hazards both obvious and hidden for which the accident frequency is increased by greater traffic usage and uncertain weather conditions. It is conceivable that some of the more dangerous features at these sites (such as deep shafts) could be drifted over with snow during the winter months due to the large amount of snow the area receives. In addition, one shaft (30 feet deep by 12 feet in diameter) at the Dandy West Upper site lies adjacent to a BLM access road. This shaft lies at the bottom of a steep ten foot embankment and is not visible to passing vechiles.

10 STATE AND FEDERAL AGENCIES CONSULTED

- Bureau of Land Management, Billings Regional Office, personal communication with John Taylor, Dec. 1988.

11 STAFF RESPONSIBLE FOR DEVELOPING THIS ENVIRONMENTAL ASSESSMENT

- James Johnson, P.E., Mining Engineering, Spectrum Engineering, Inc., Billings, Montana.
- Vern Heisler, Geologist, Spectrum Engineering, Inc., Billings, Montana.

12 REFERENCES CITED

1. Hauptman, C.M., 1956, *Uranium in the Pryor Mountains area of southern Montana and northern Wyoming*, Uranium and Modern Mining, v.3, n. 11, pp. 14-21.
2. Jarrard, L.D., 1957, *Some Occurrences of Uranium and Thorium in Montana*, Montana Bureau of Mines and Geology Miscellaneous Contribution No. 15, pp. 10-37.
3. Bureau of Land Management, Nov. 1983, *Final Environmental Impact Statement, Resource Management Plan, Billings Resource Area*, p. 82.
4. Bureau of Land Management, Sept. 1984, *Record of Decision, Billings Resource Management Plan*, Final EIS.
5. U.S. Forest Service, *Draft EIS, Custer National Forest, Land and Resource Management Plan*, undated (circa 1983).
6. Historical Research Associates, Missoula, Montana, *Report of Findings of a Cultural Resource Inventory of Uranium Mine Reclamation Areas in the Pryor Mountains*, Carbon County, Montana, Dec. 11, 1987.

13 SIGNATURES

Prepared by: ____________________
James Johnson, P.E.
Spectrum Engineering

Date: December 16, 1988

Approved by: ____________________

Date: ____________________

APPENDIX A

SITE PHOTOS

PHOTO 1 - Swamp Frog East #1 site showing open adit.

PHOTO 2 - Swamp Frog East #1 site showing open adit and a portion of the excavated area.

PHOTO 3 - Swamp Frog East #1 site showing the open adit and waste pile.

PHOTO 4 - Swamp Frog East #2 site showing the main adit opening.

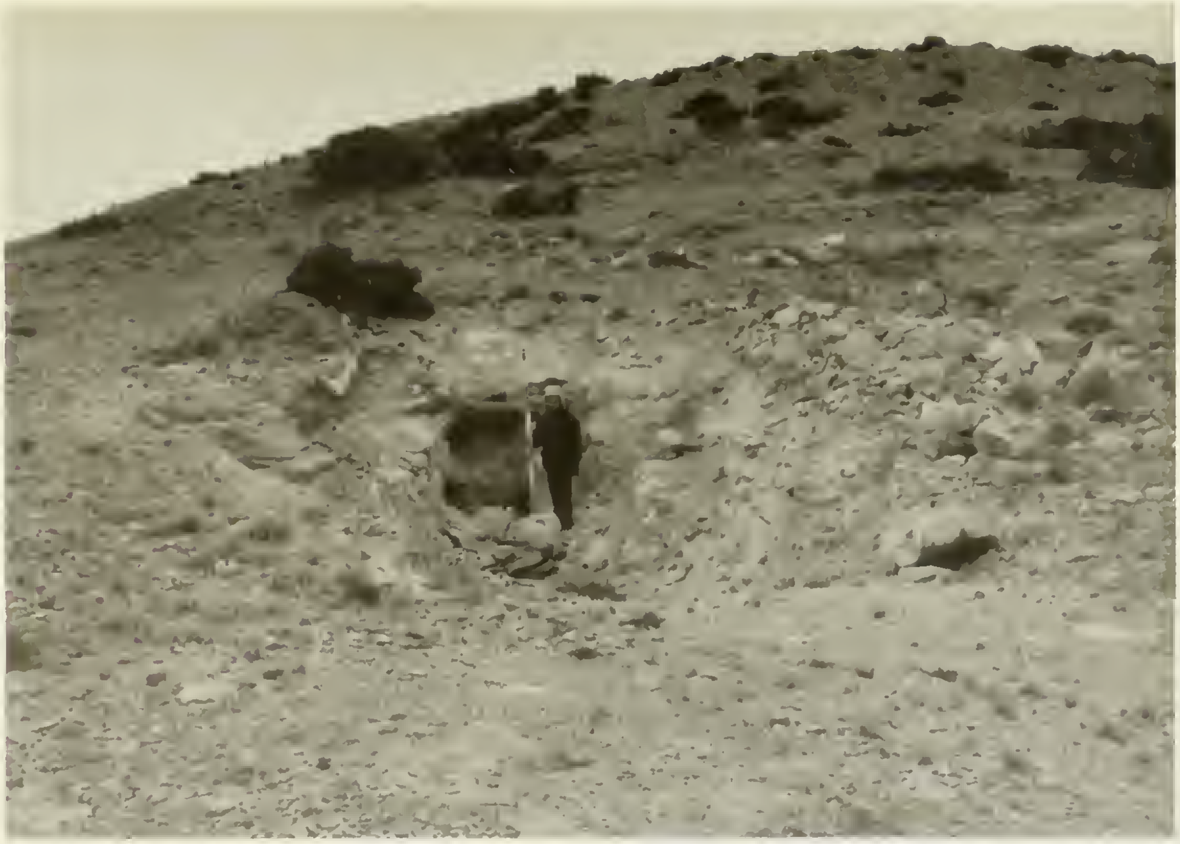


PHOTO 5 - Swamp Frog East #2 site showing the adit opening and excavated area.

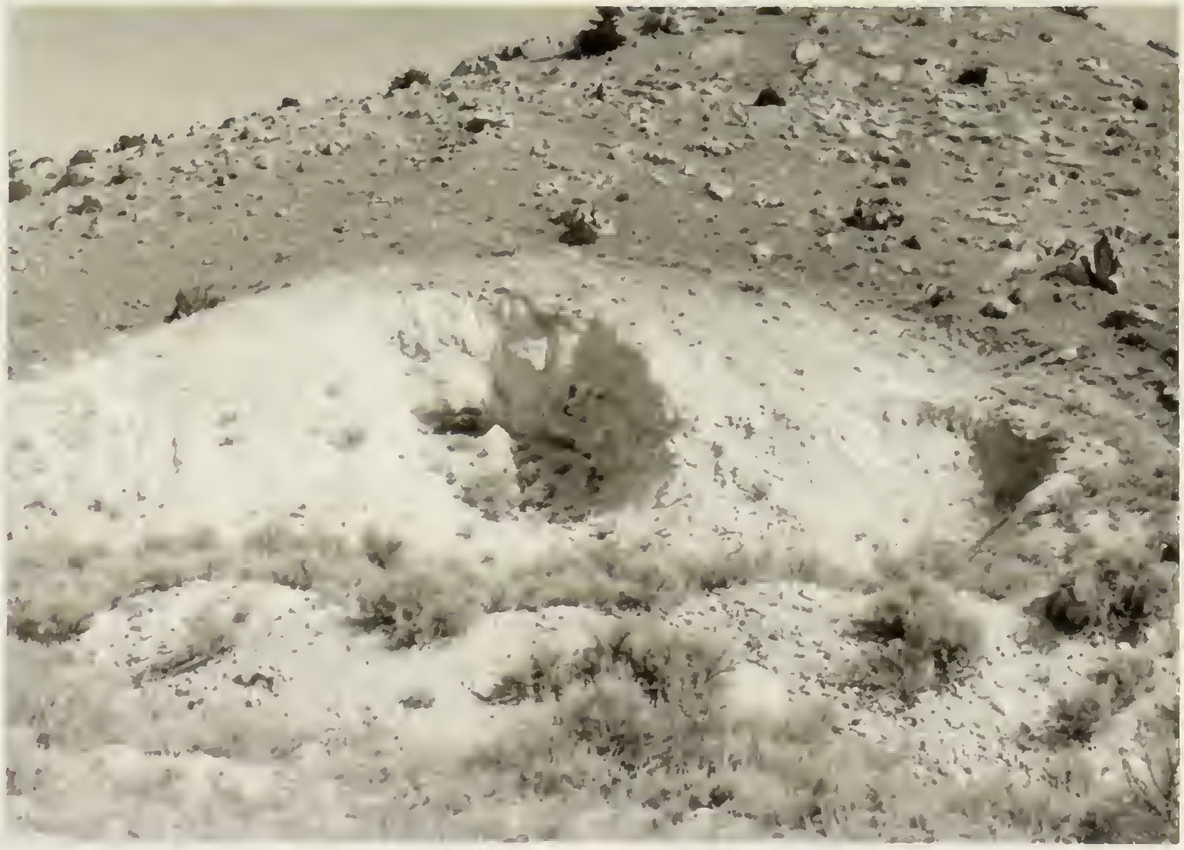


PHOTO 6 - Swamp Frog Northwest site showing collasped adits 1 and 2 and the access road.

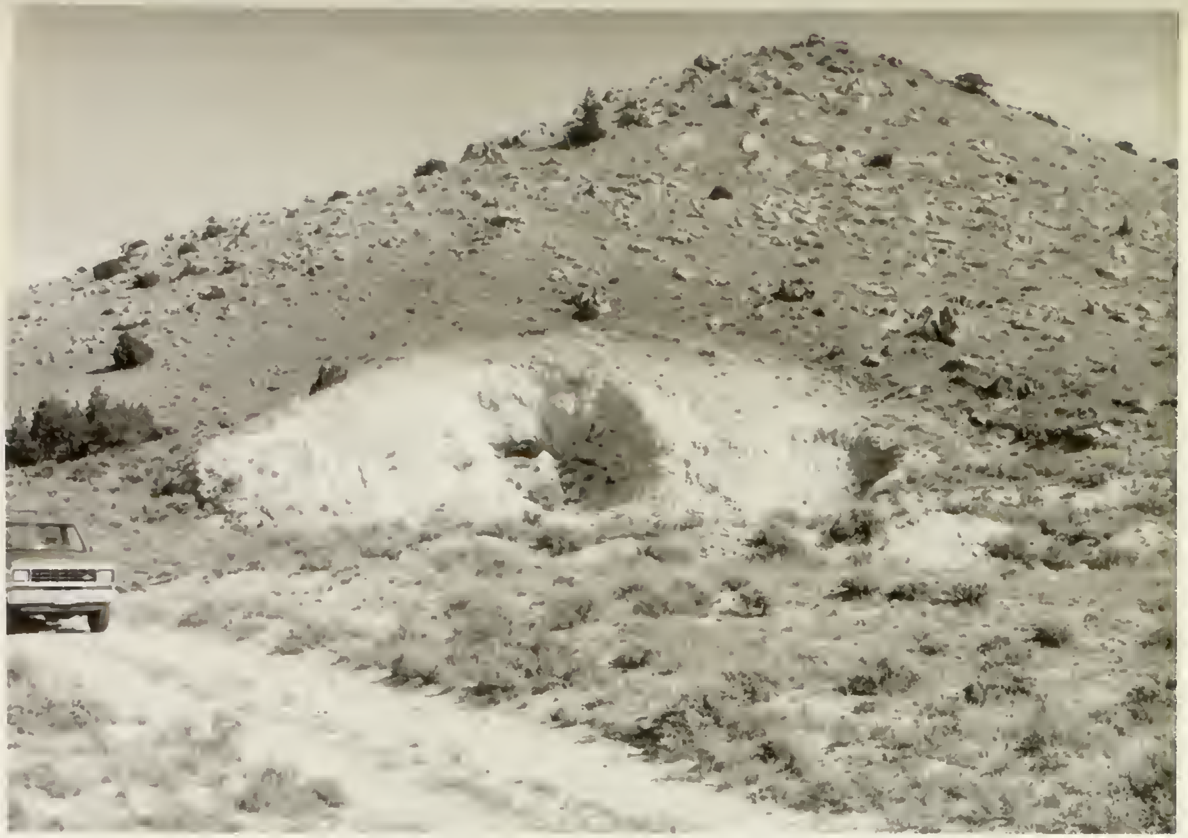


PHOTO 7 - Swamp Frog Northwest site showing collasped adits 1 and 2 and the waste dump.

PHOTO 8 - Swamp Frog Southeast area.

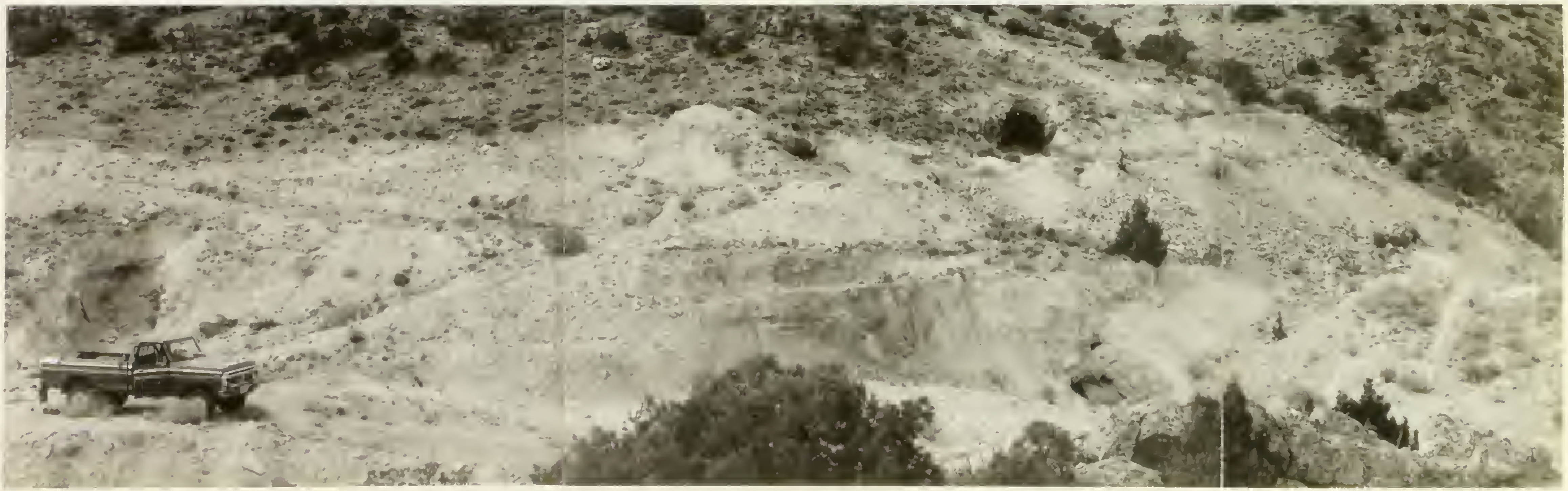


PHOTO 9 - Swamp Frog Southeast site showing open adit 4.

PHOTO 10 - Swamp Frog Southeast site showing 2 of the 3 openings associated with adit 3.

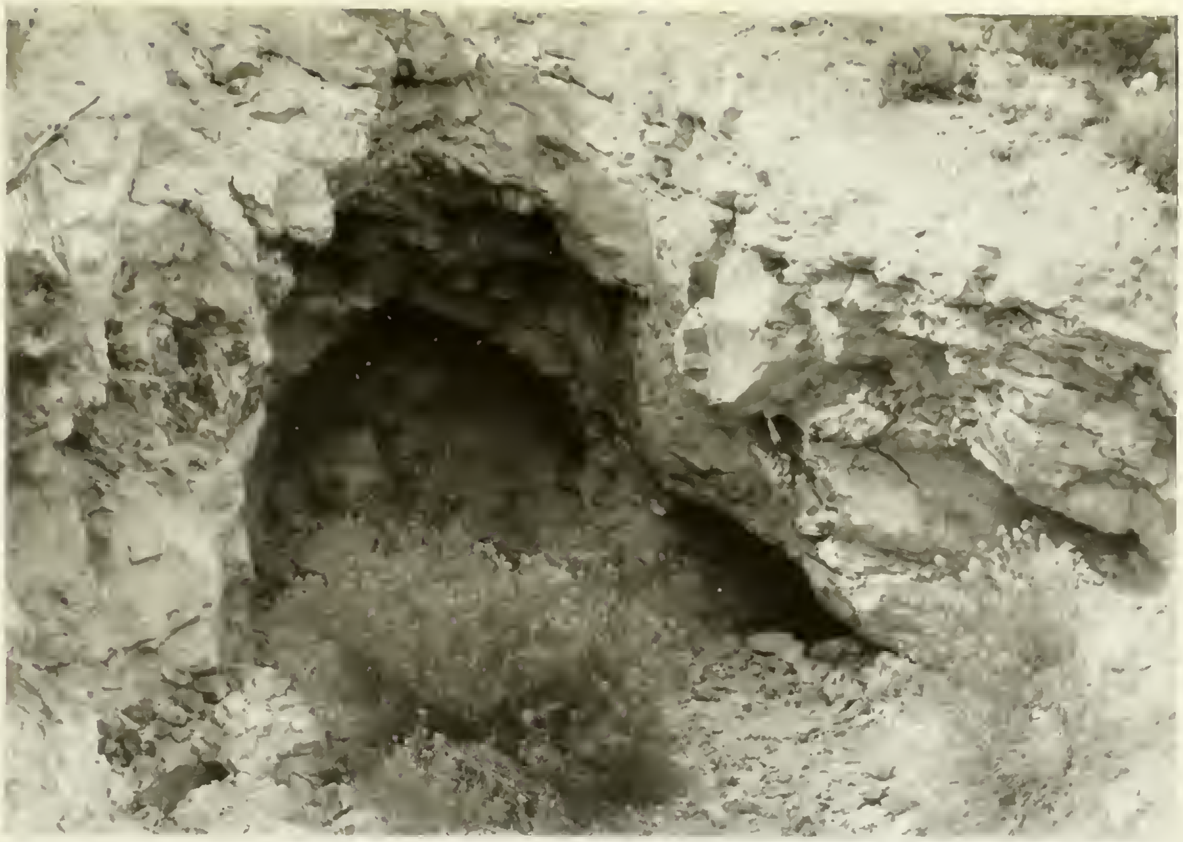


PHOTO 11 - Swamp Frog Southeast site showing open adit 3.

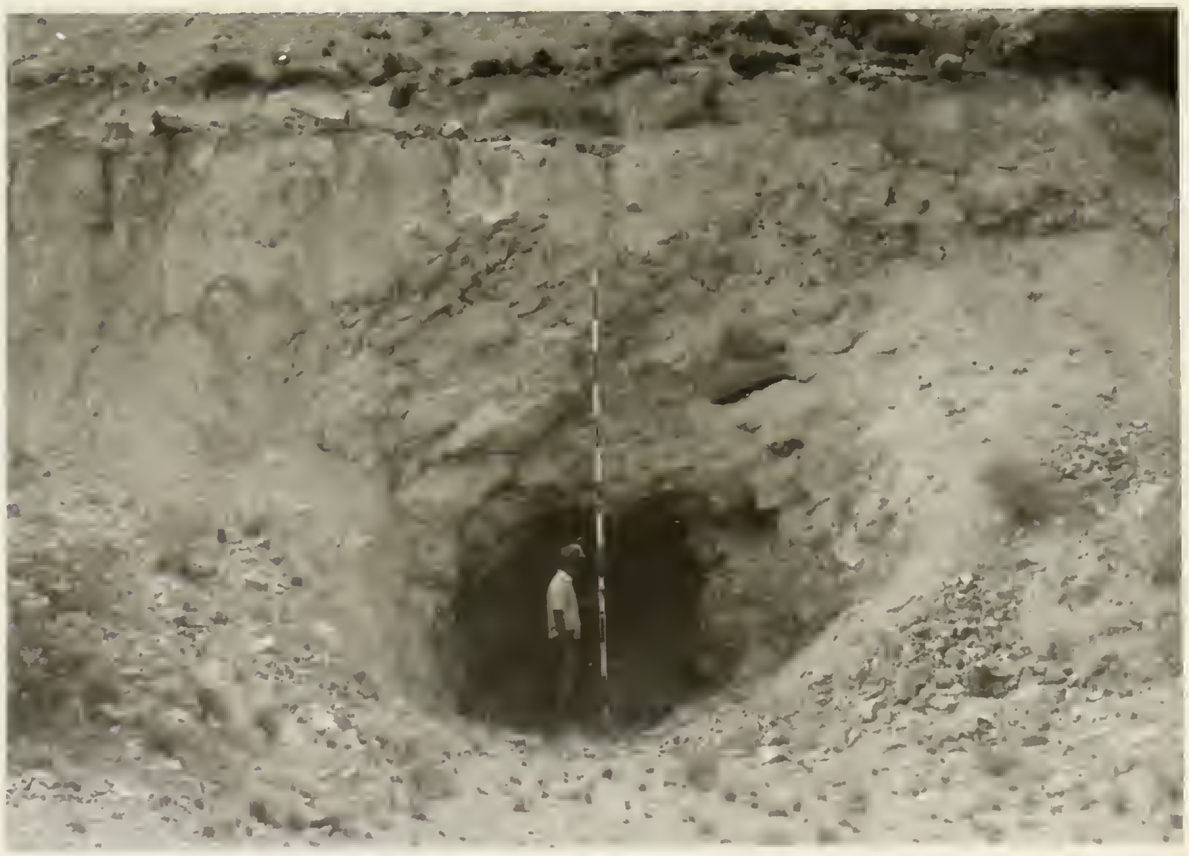


PHOTO 12 - Swamp Frog Southeast site showing open adit 2.

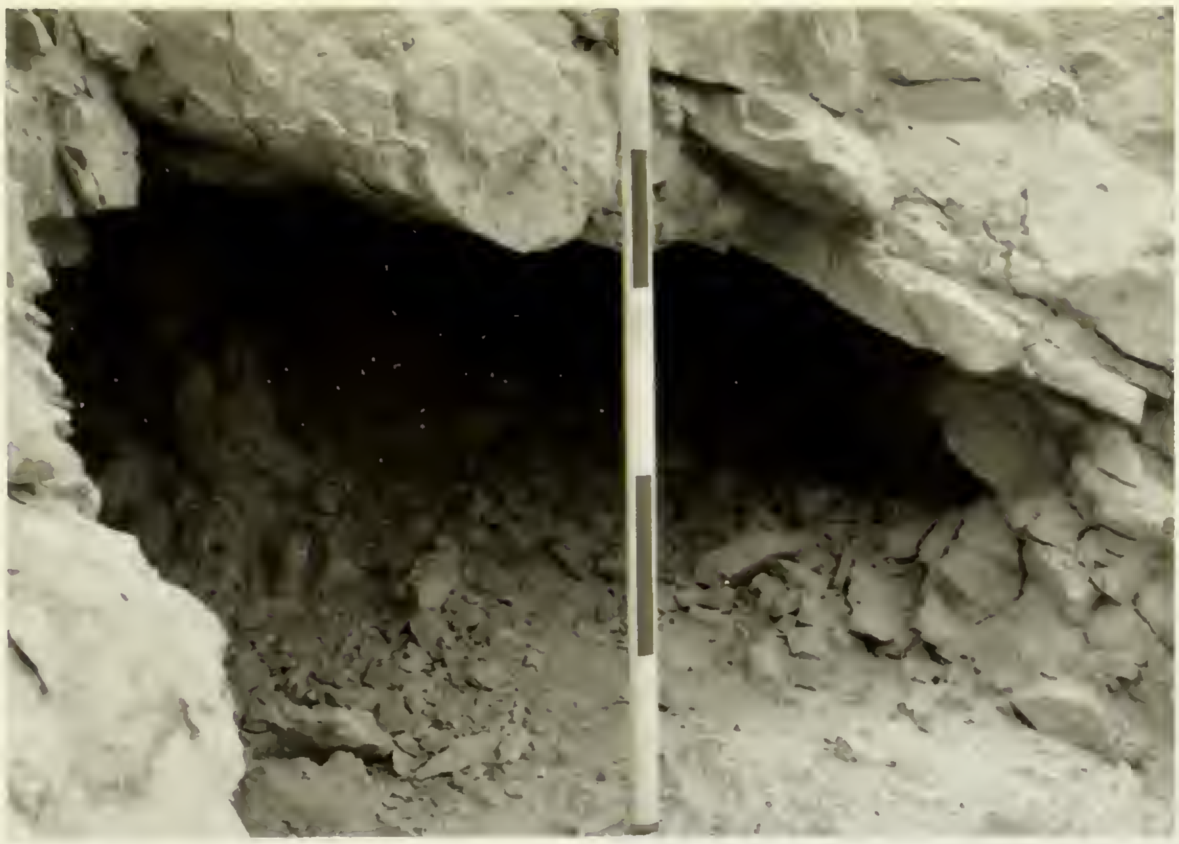


PHOTO 13 - Swamp Frog South site showing open adit.

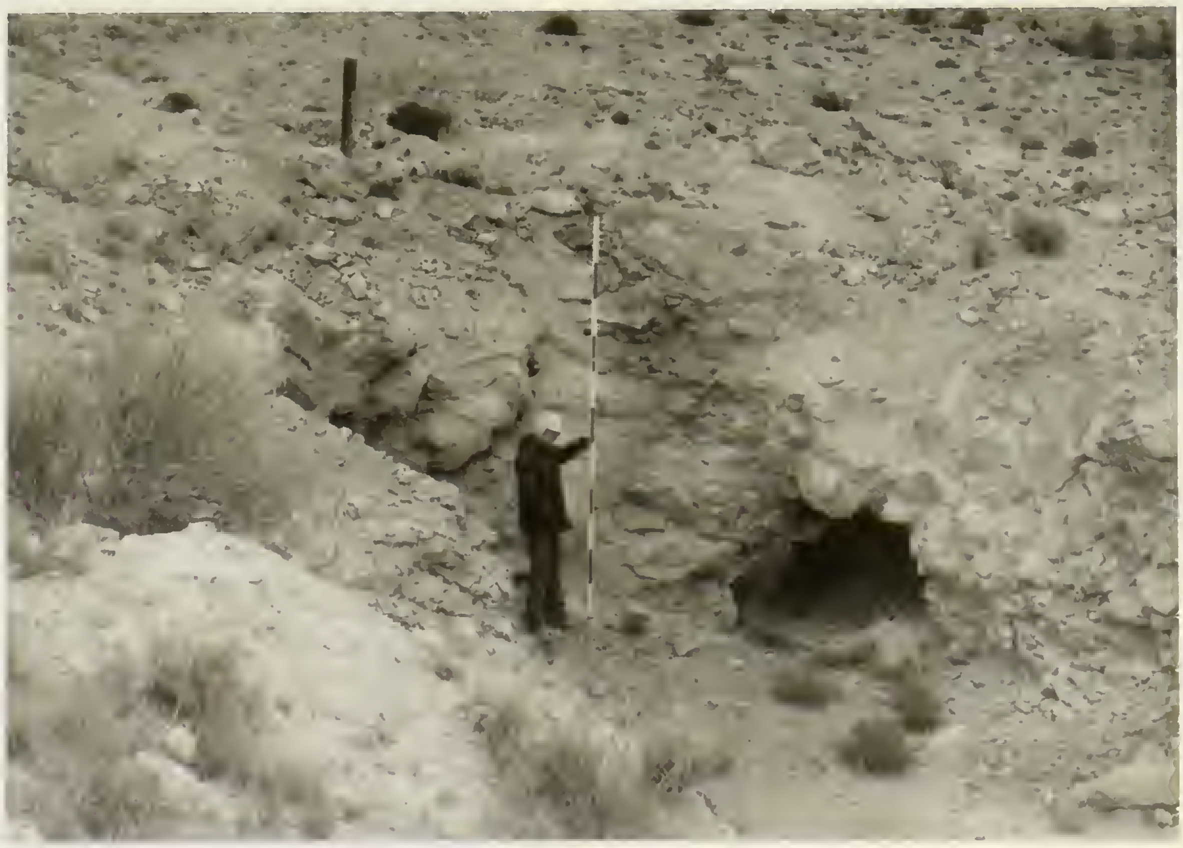


PHOTO 14 - Swamp Frog South site showing the adit excavation.

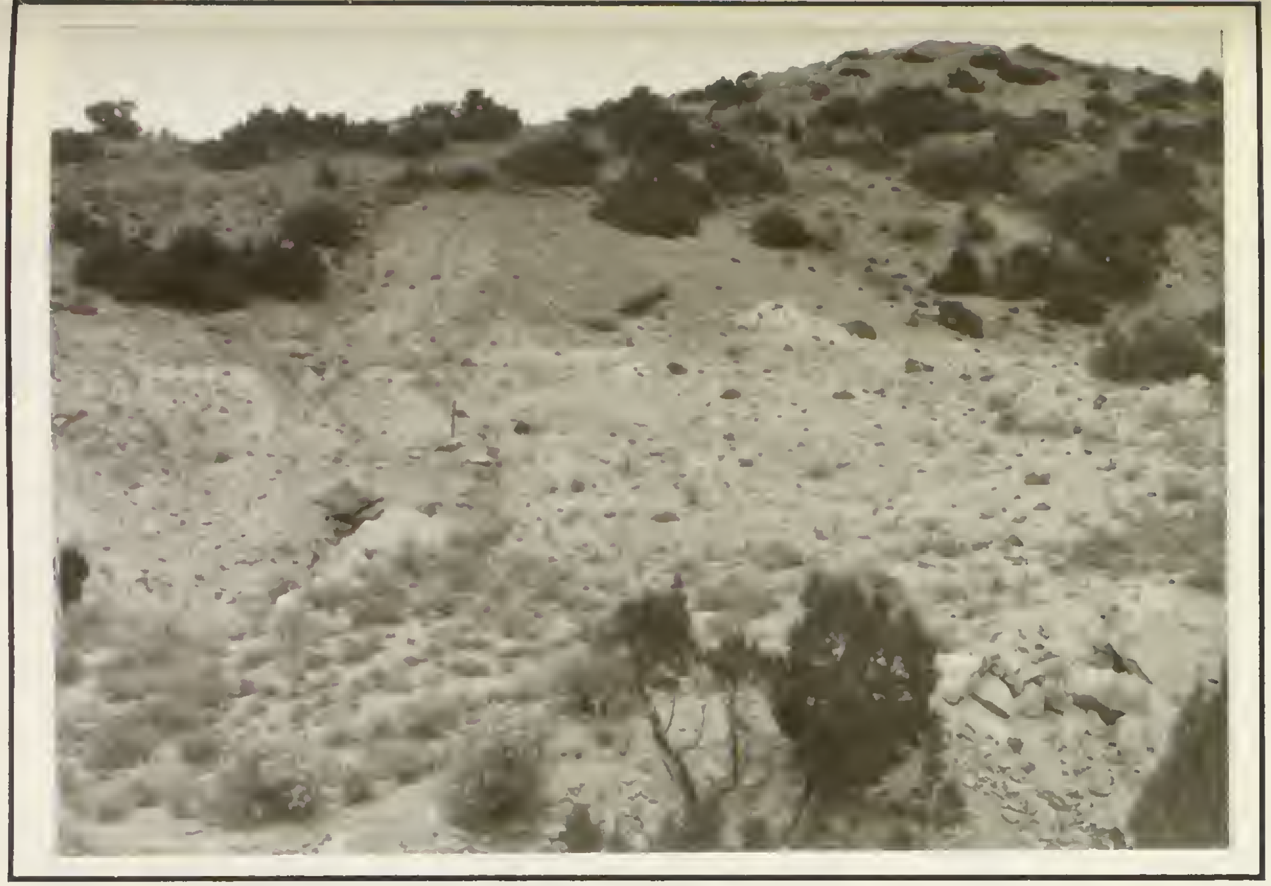
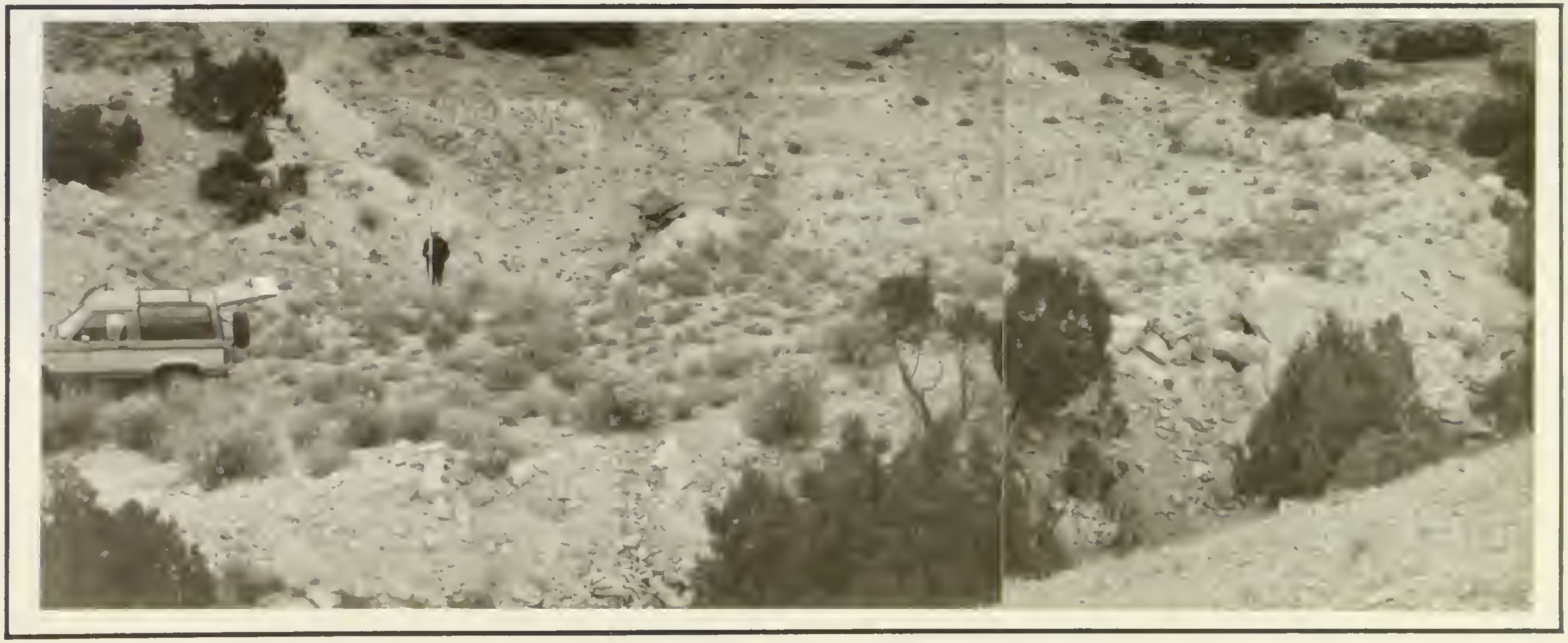


PHOTO 15 - Swamp Frog South site showing adit excavation and the waste dump.

PHOTO 16 - Swamp Frog South site showing the waste dump and the adit excavation.



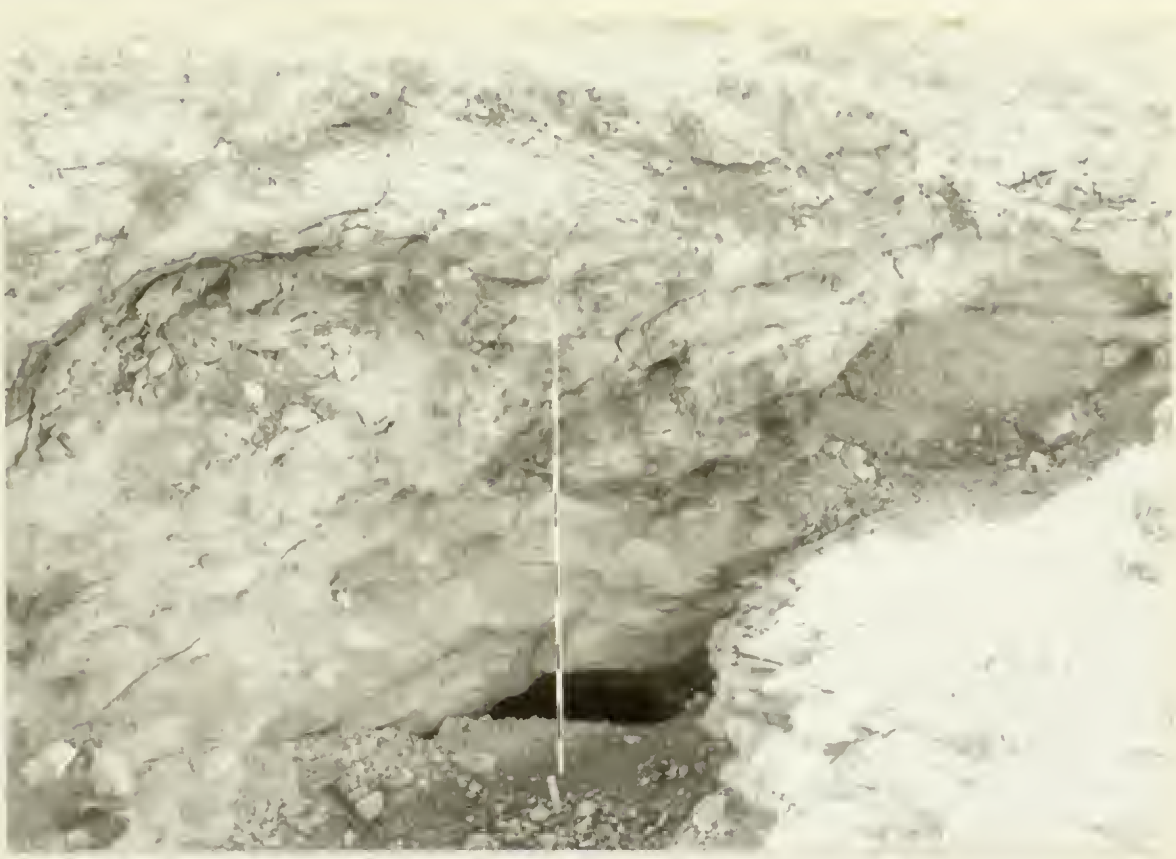


PHOTO 17 - Swamp Frog Central #1 site showing southern adit opening.

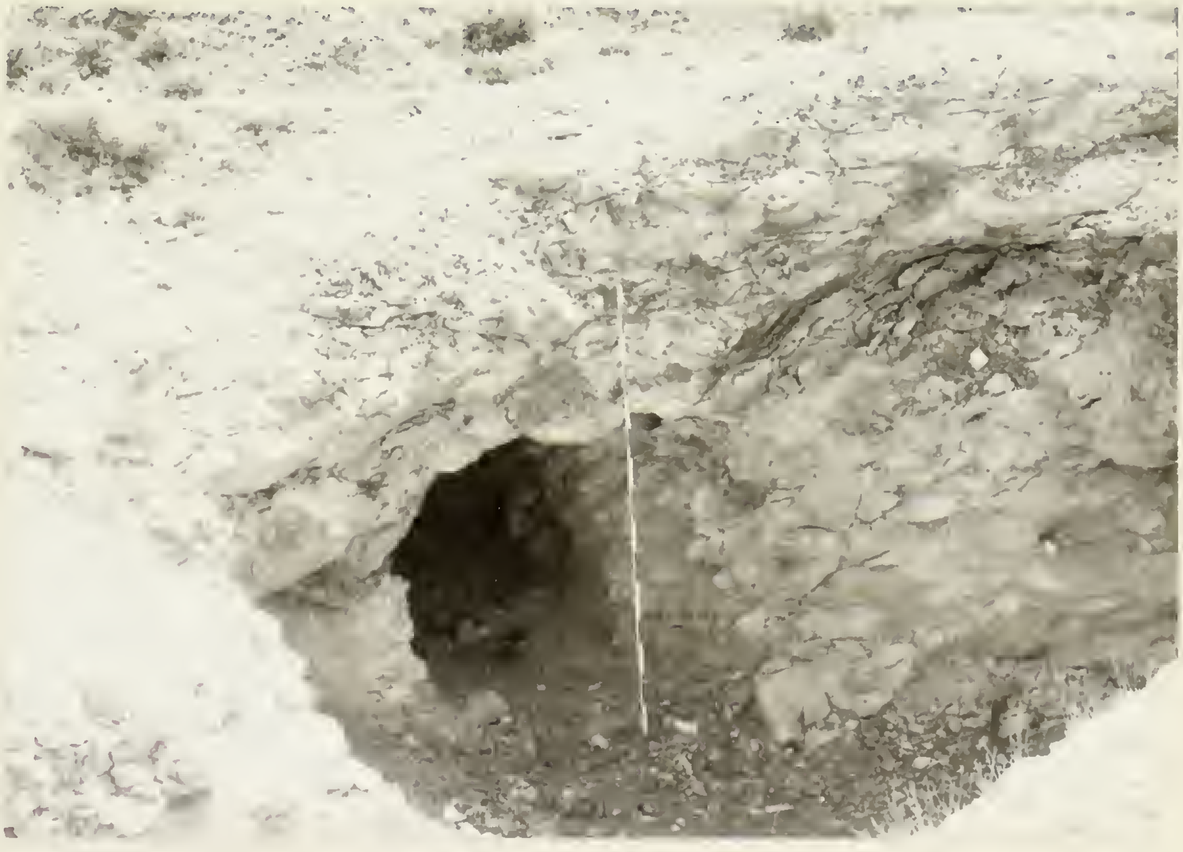


PHOTO 18 - Swamp Frog Central #1 site showing northern adit opening.

PHOTO 19 - Swamp Frog Central #1 site showing the two adits and waste piles.

PHOTO 20 - Swamp Frog Central #2 site showing excavation pit 1.

PHOTO 21 - Swamp Frog Central #2 site showing excavation pit 2 and the ore pile.

PHOTO 22 - Swamp Frog Central #2 site showing excavation pits 1 and 2, the ore pile, and access road.

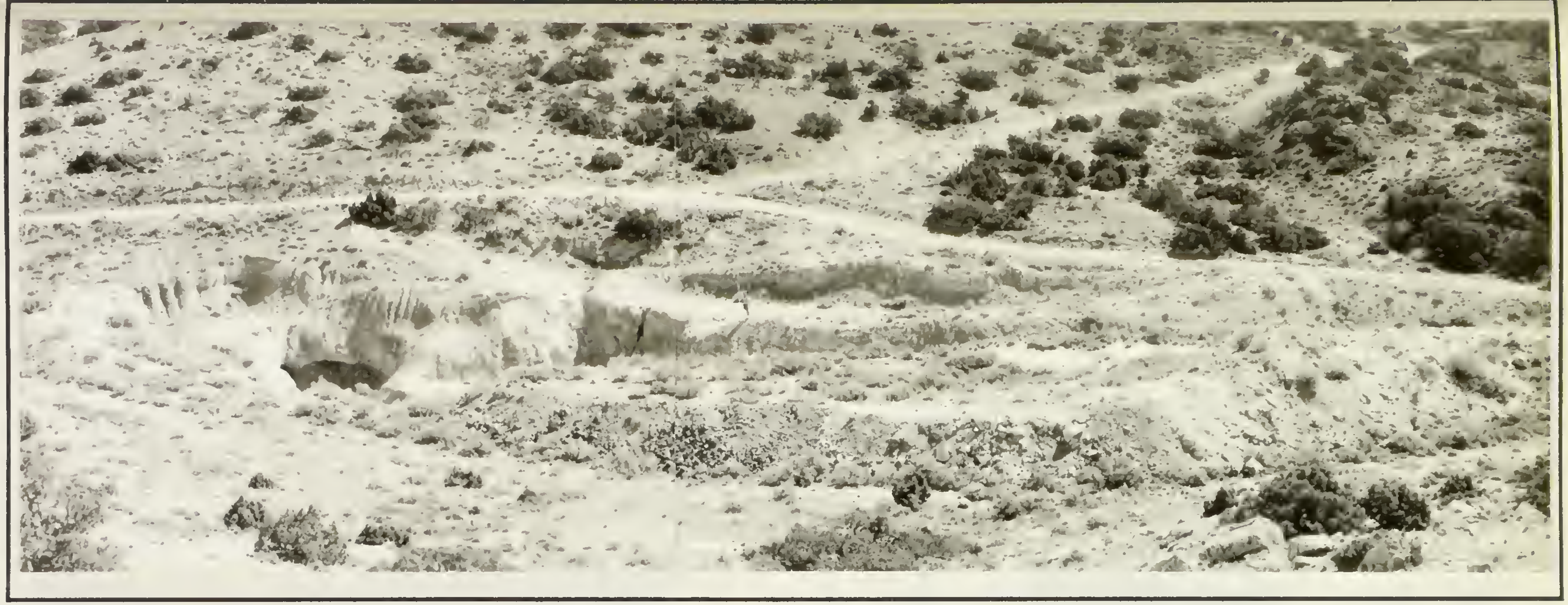


PHOTO 23 - Swamp Frog Central #3 site showing the access road, open excavation and the large waste dump.

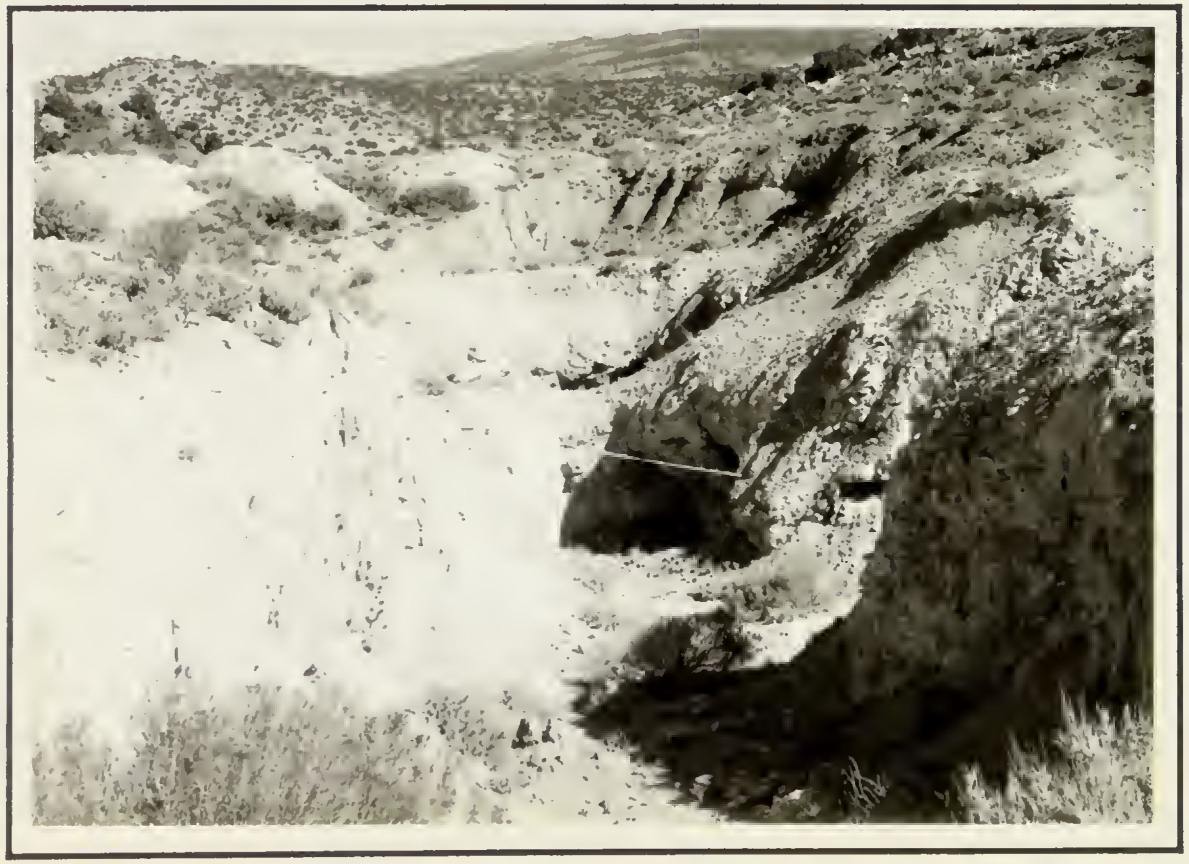


PHOTO 24 - Swamp Frog Central #3 site showing the trench leading to the open excavation.

PHOTO 25 - Swamp Frog Central #3 site showing open excavation.

PHOTO 26 - Lisbon Point West site showing adit opening, excavated area adjacent to the adit, access road and a portion of the waste dump.

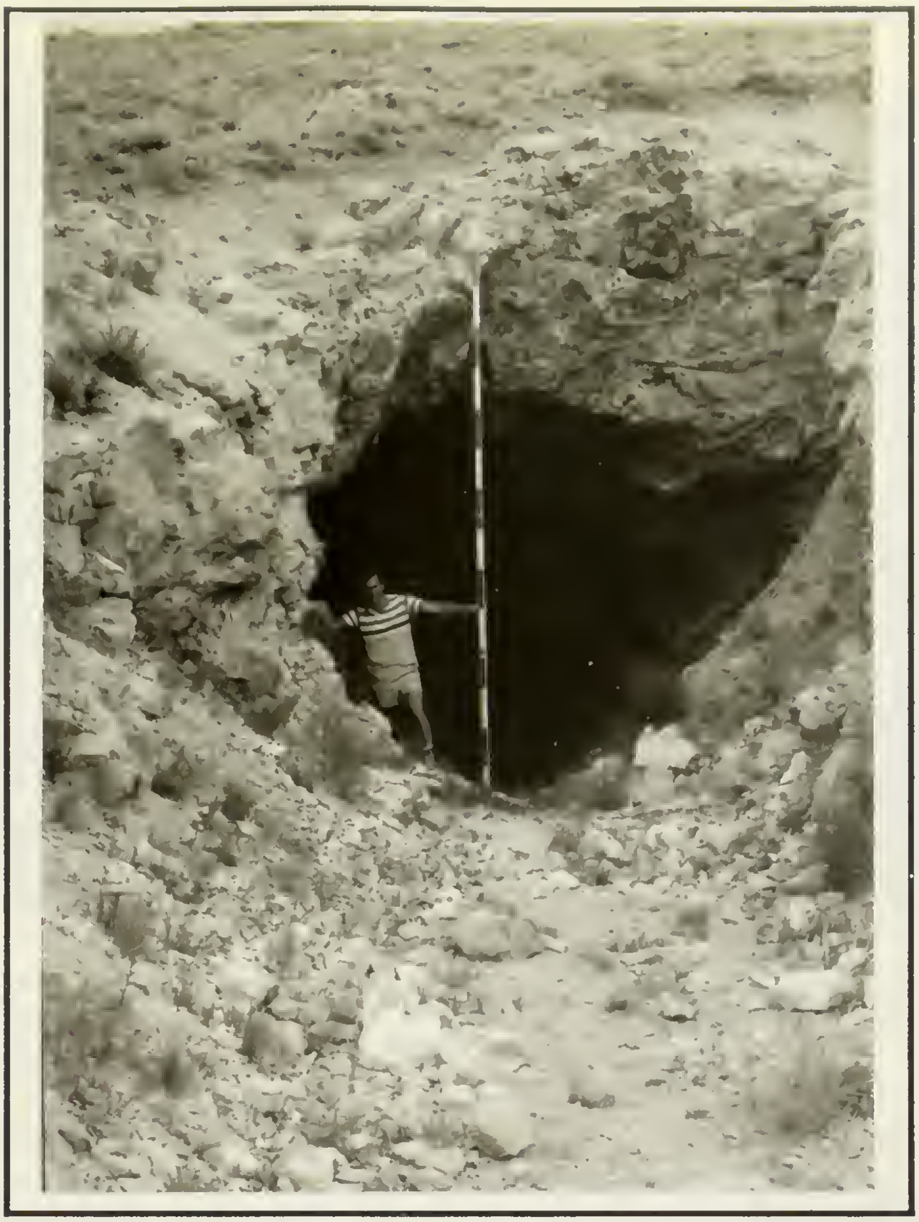


PHOTO 27 - Lisbon Point West site showing the open adit.

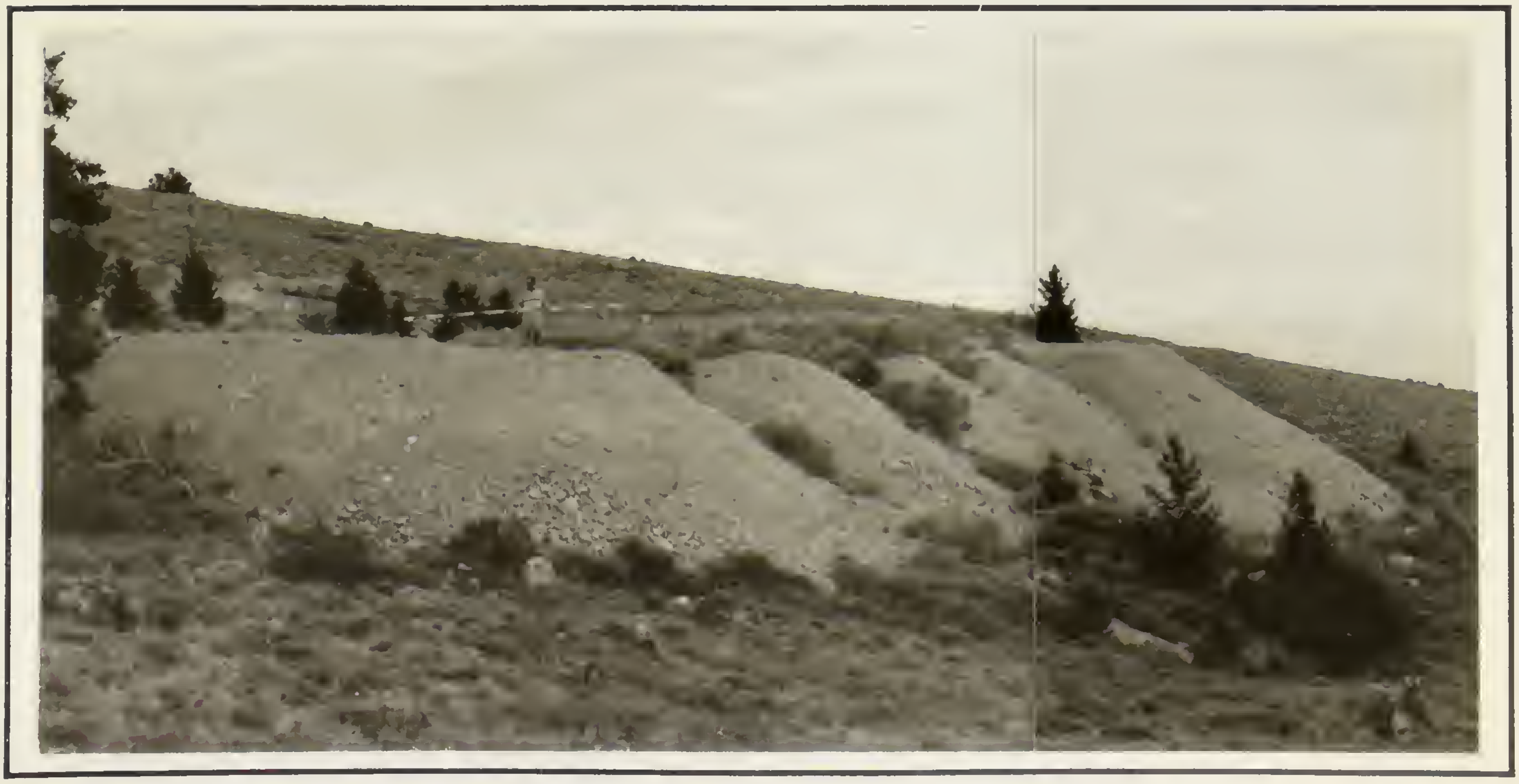


PHOTO 28 - Lisbon Point West site showing the waste dump.

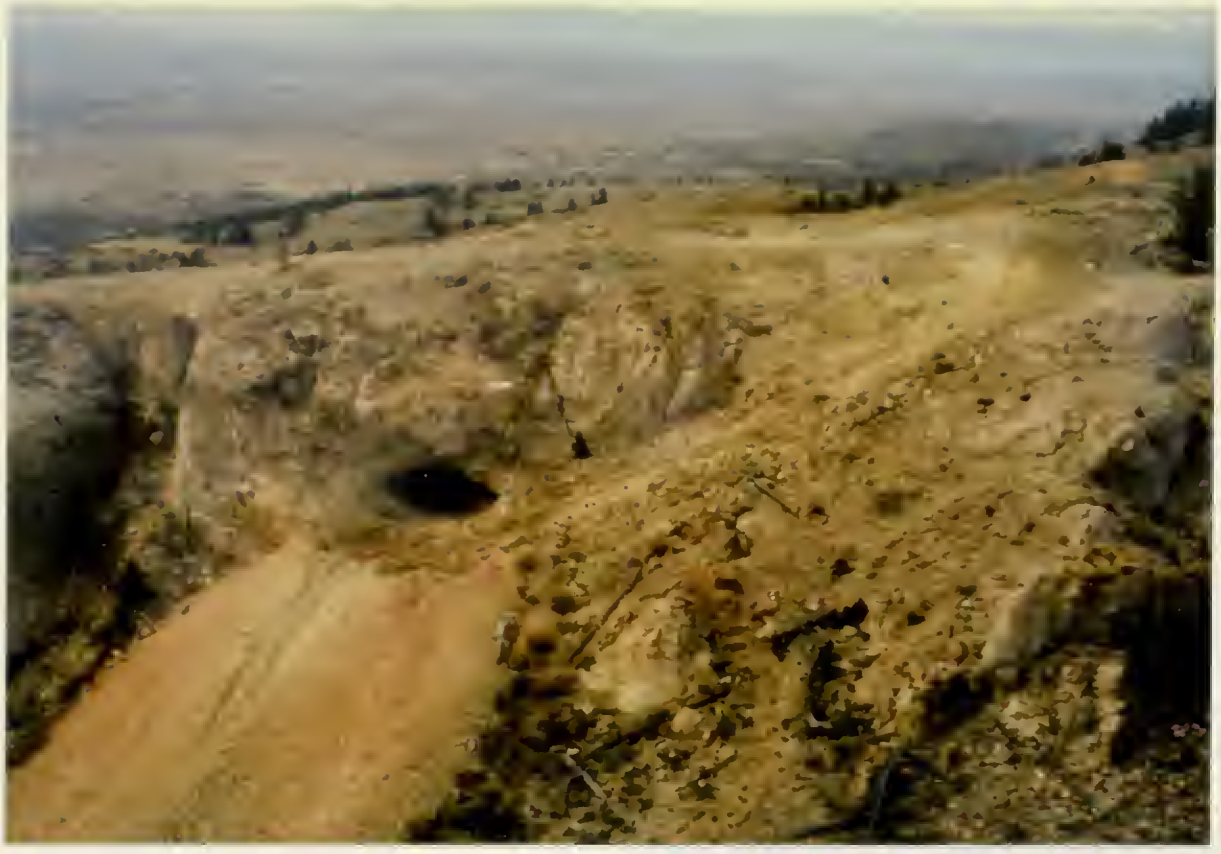


PHOTO 29 - Lisbon Point East site showing open adit, the waste dump, and access road.

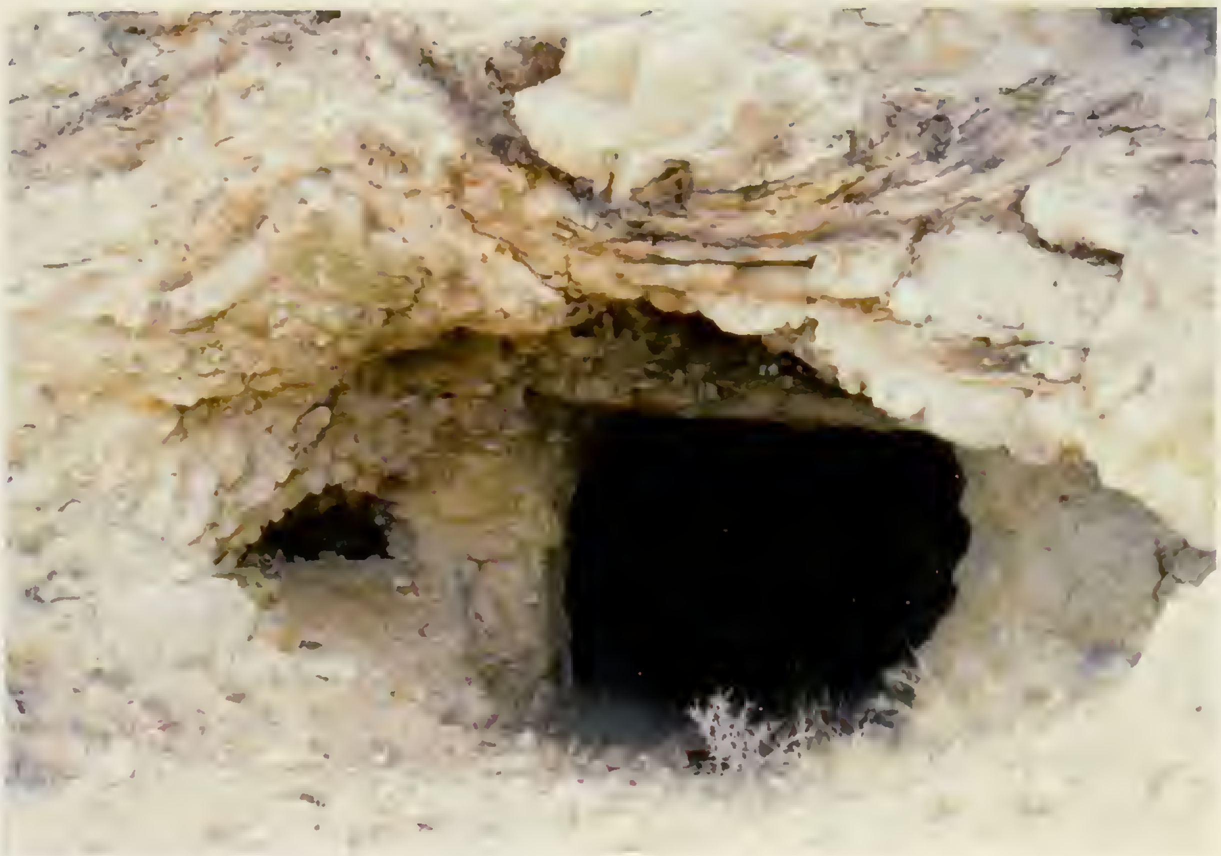


PHOTO 30 - Lisbon Point East site showing adit opening.

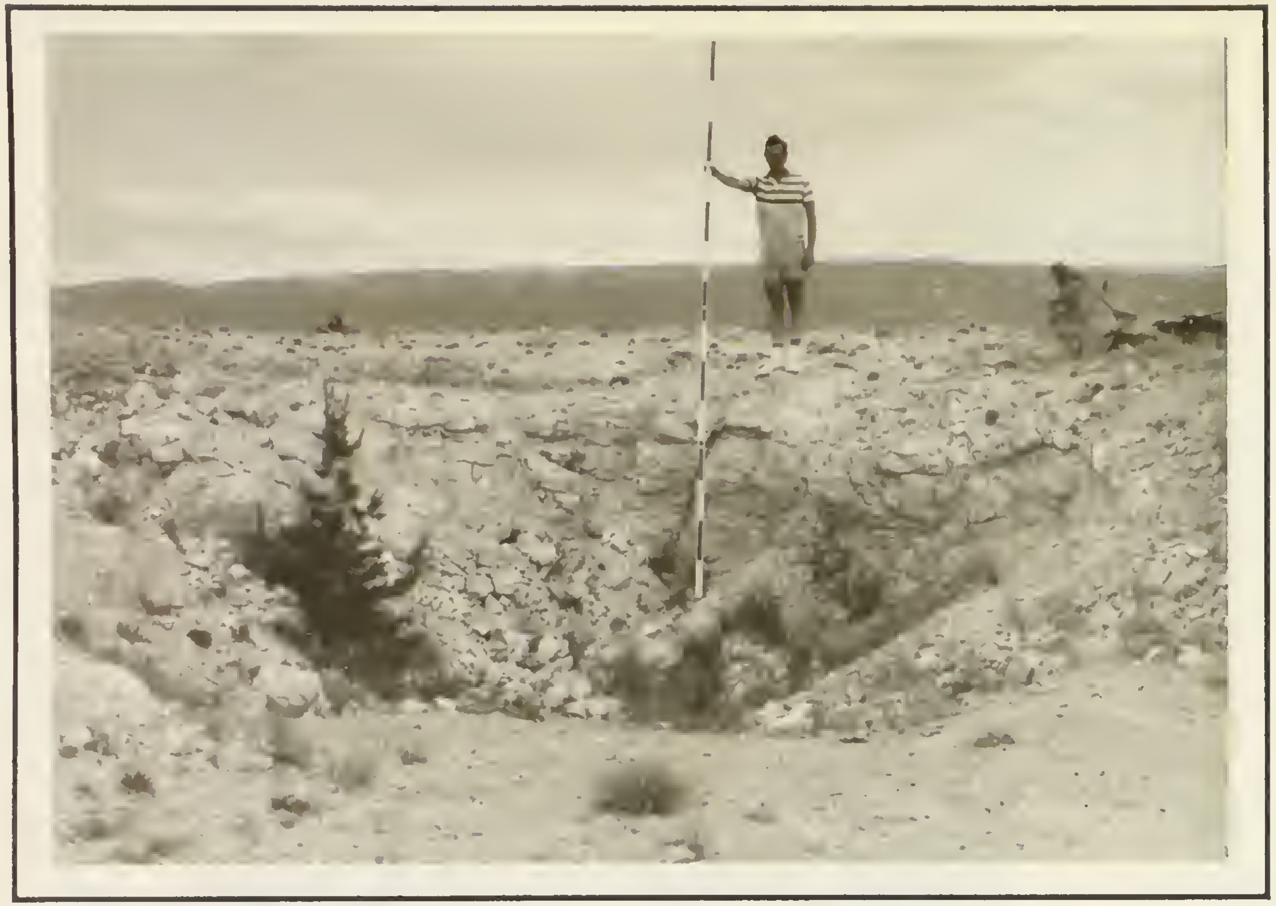
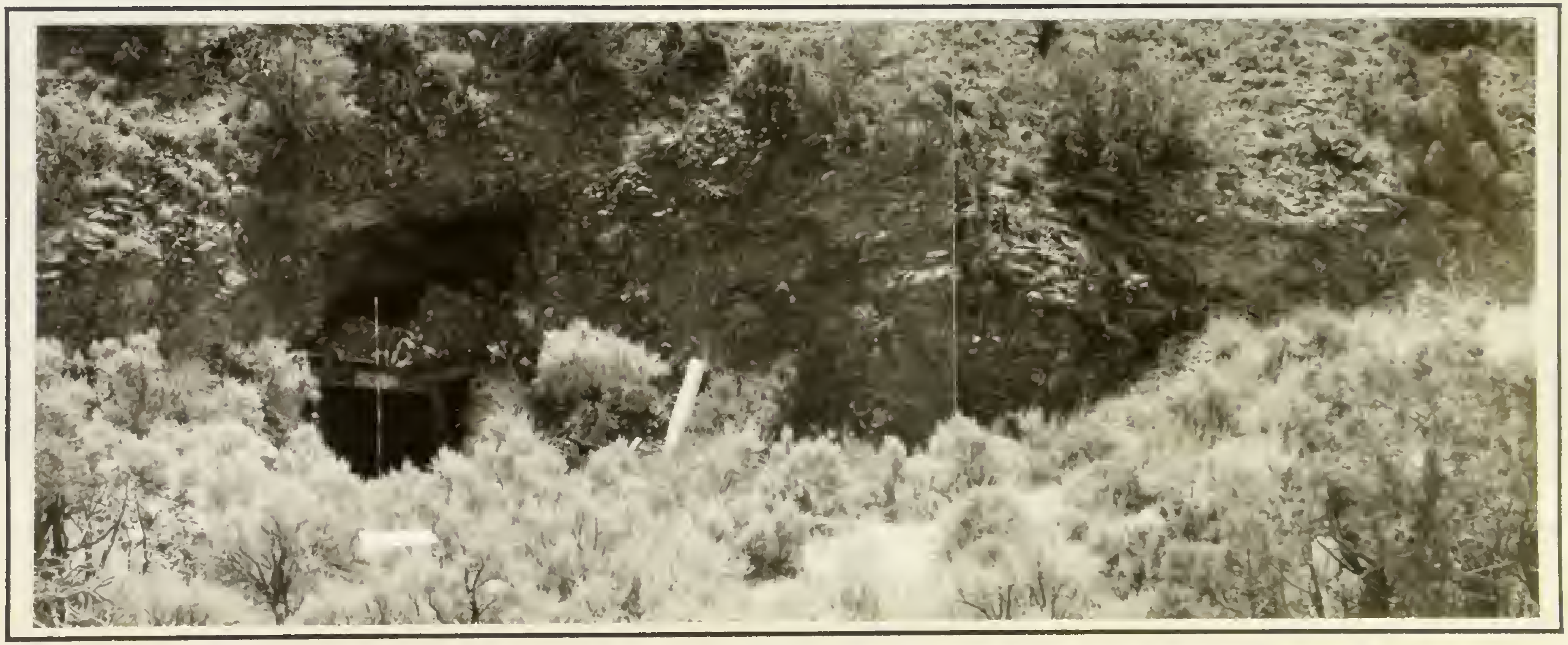


PHOTO 31 - Lisbon Point East site showing the exploration pit.

PHOTO 32 - Robert's Incline site showing adit opening, top of waste dump and steep highwalls.



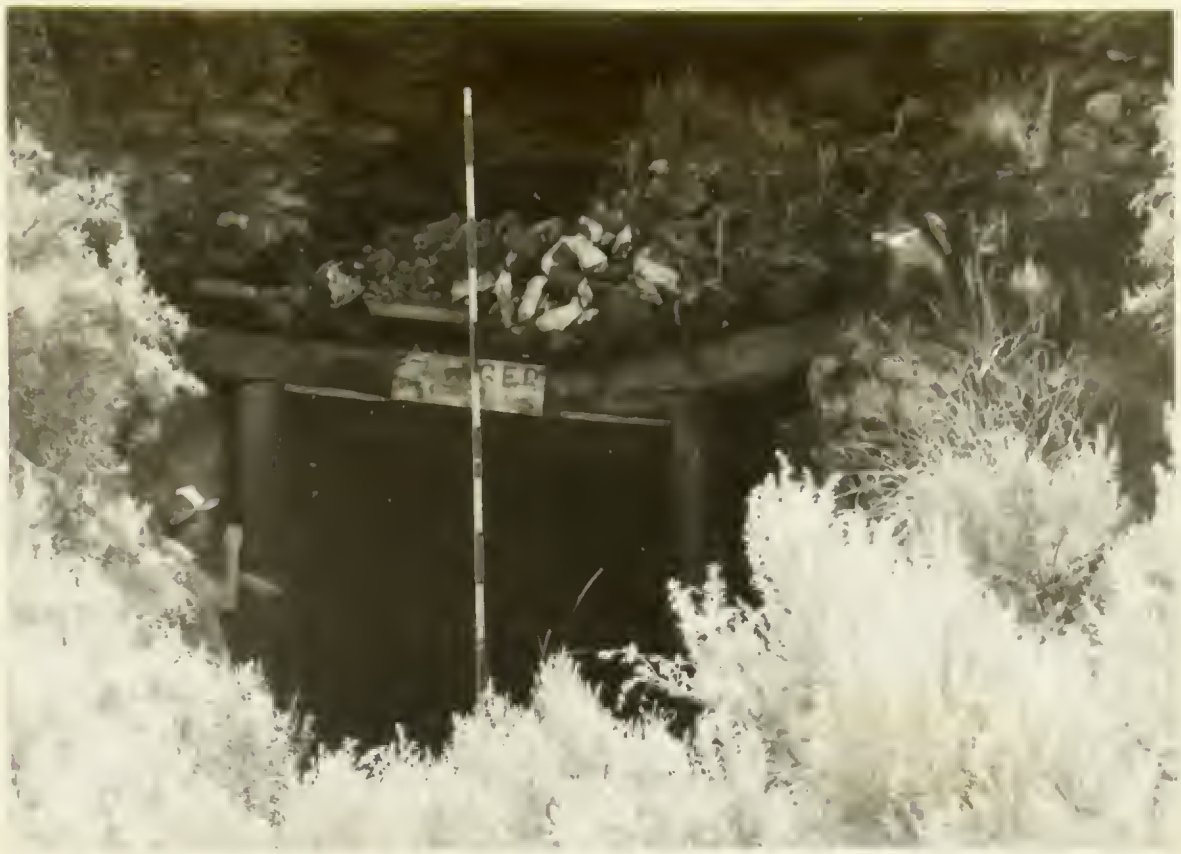


PHOTO 33 - Robert's Incline site showing open adit.

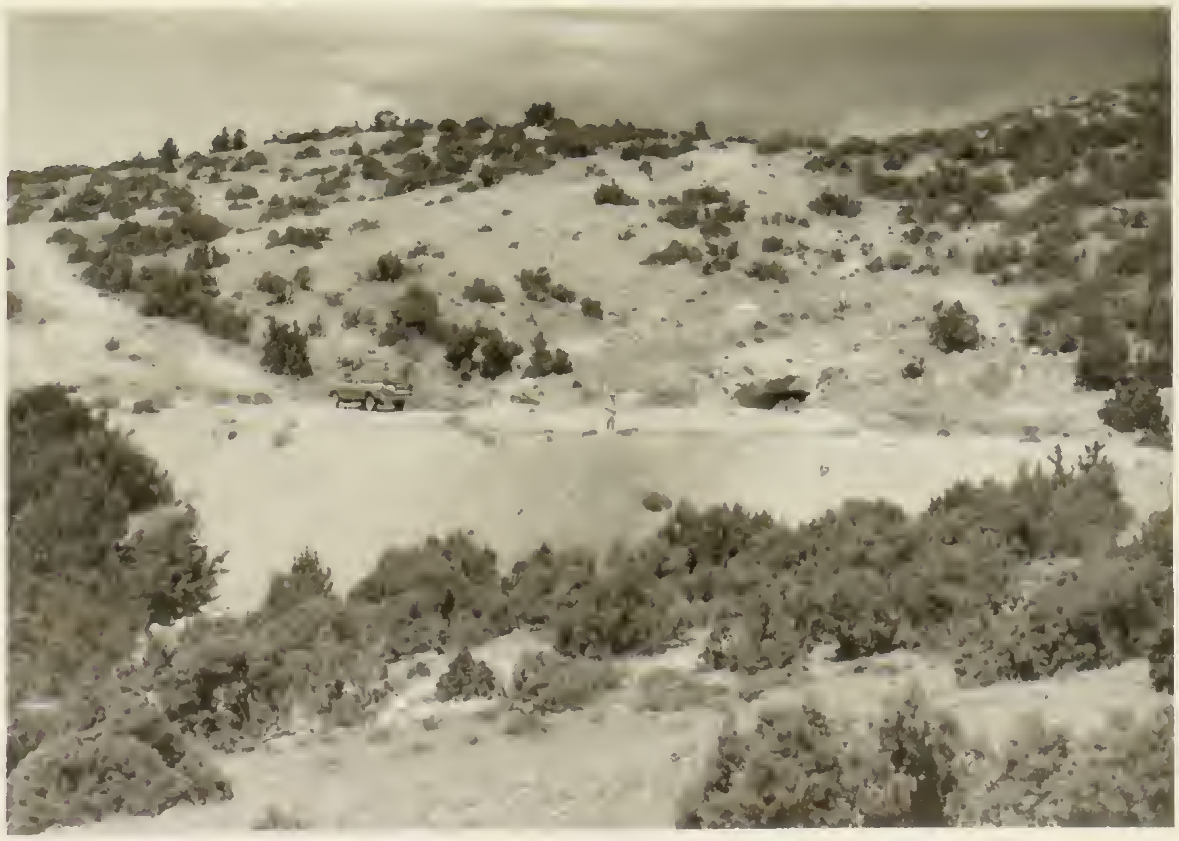


PHOTO 34 - Marie site showing the open adit and waste dump.

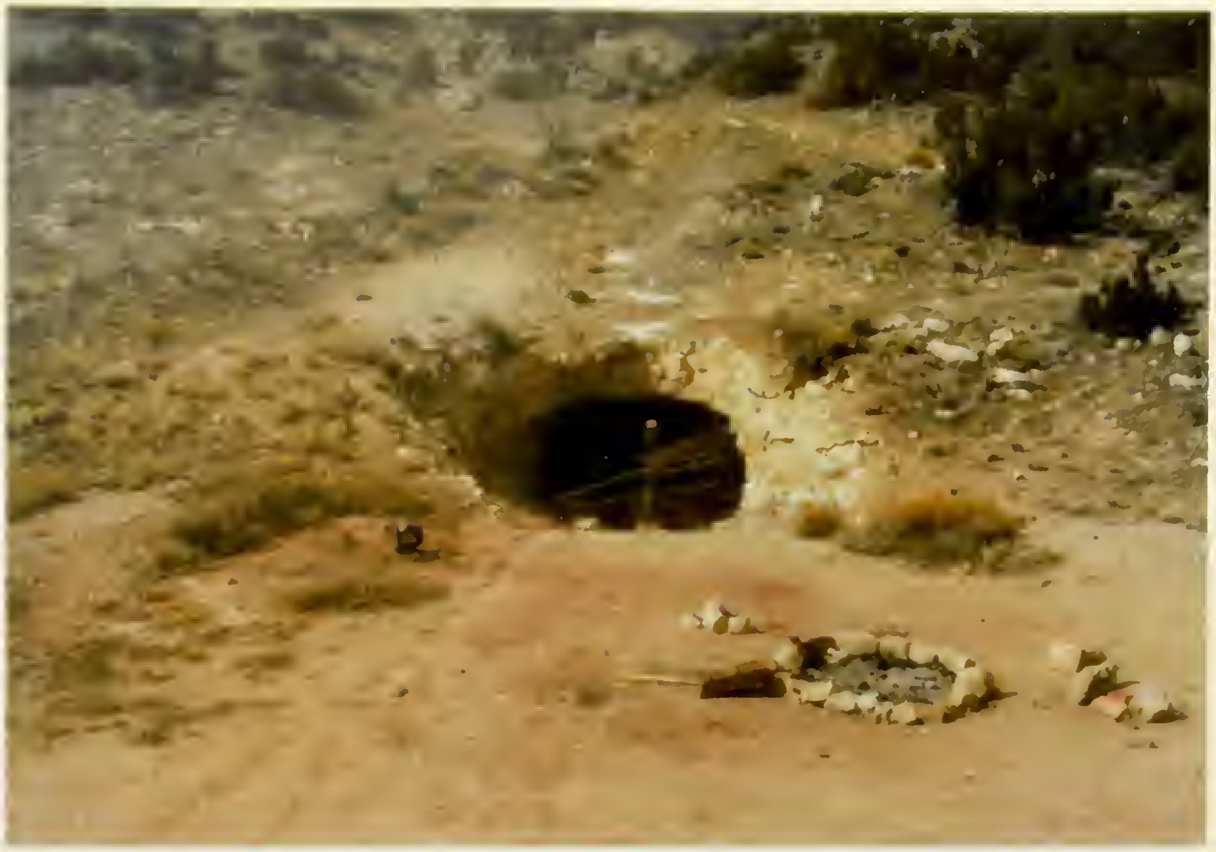


PHOTO 35 - Marie site showing the open adit.

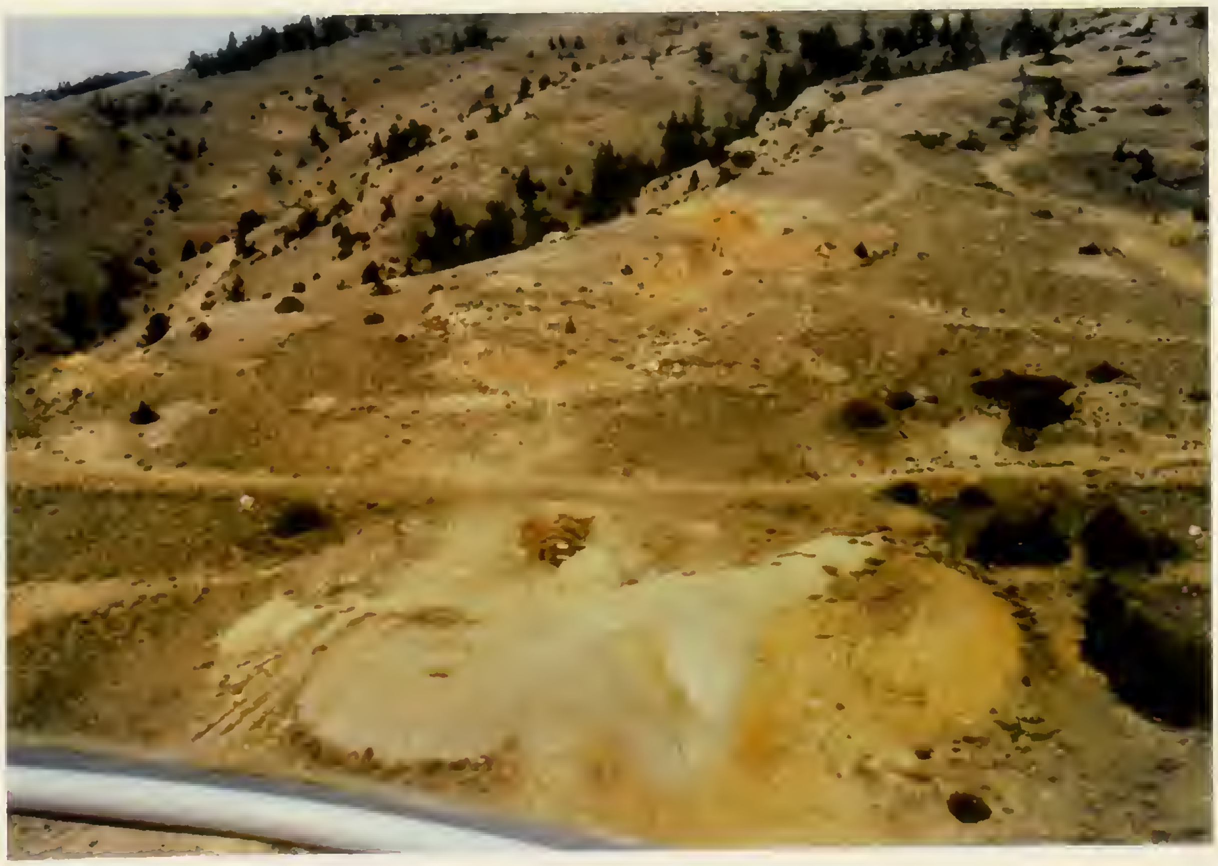


PHOTO 36 - CM&M Pit site showing the open adit, waste dump, excavated pit 1, and access road.

PHOTO 37 - CM&M Pit site showing the open adit.

PHOTO 38 - CM&M Pit site showing a portion of excavated pit 1.

PHOTO 39 - CM&M Pit site showing waste dump 2.

PHOTO 40 - CM&M West site showing the adit opening.

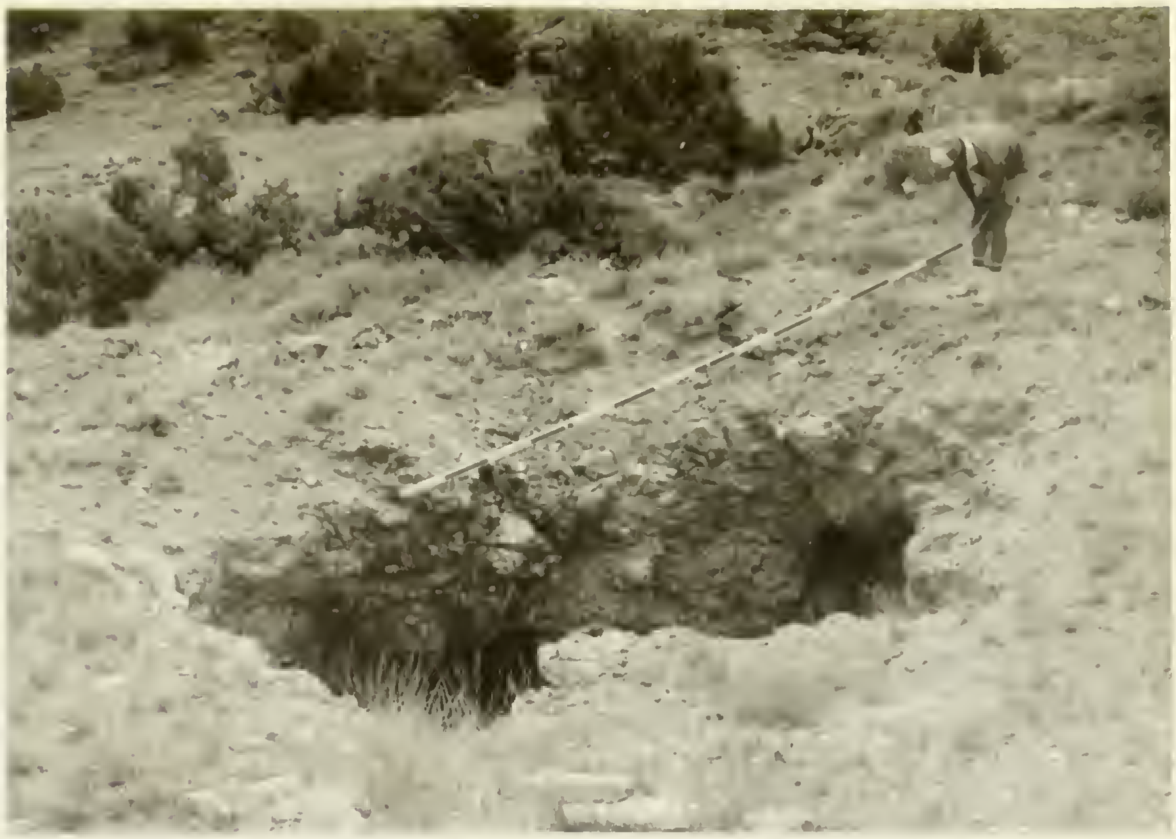


PHOTO 41 - CM&M West site showing the shaft opening.

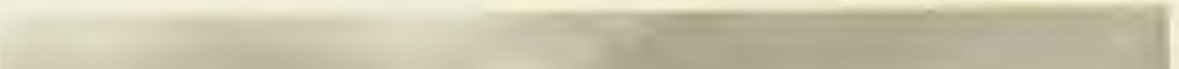


PHOTO 42 - CM&M West site showing waste dump 1 and waste 2.

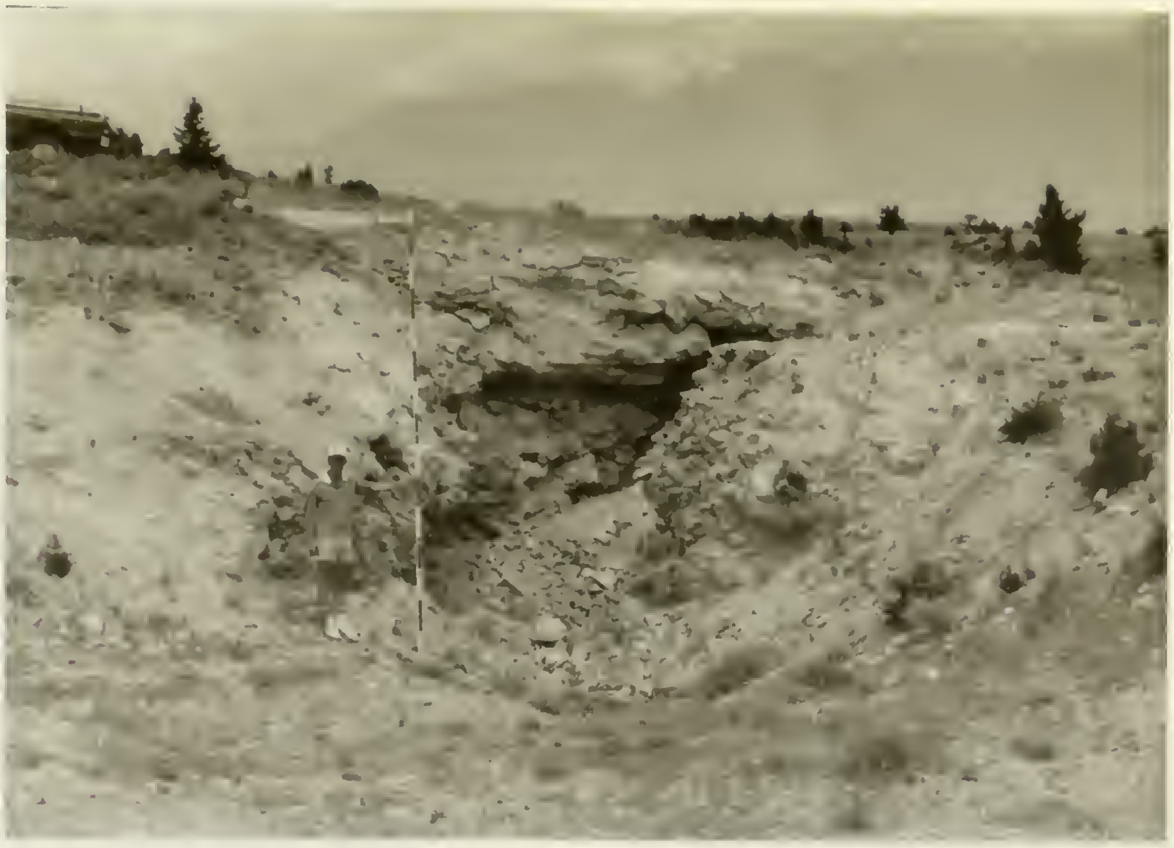


PHOTO 43 - CM&M West site showing the collapsed adit.

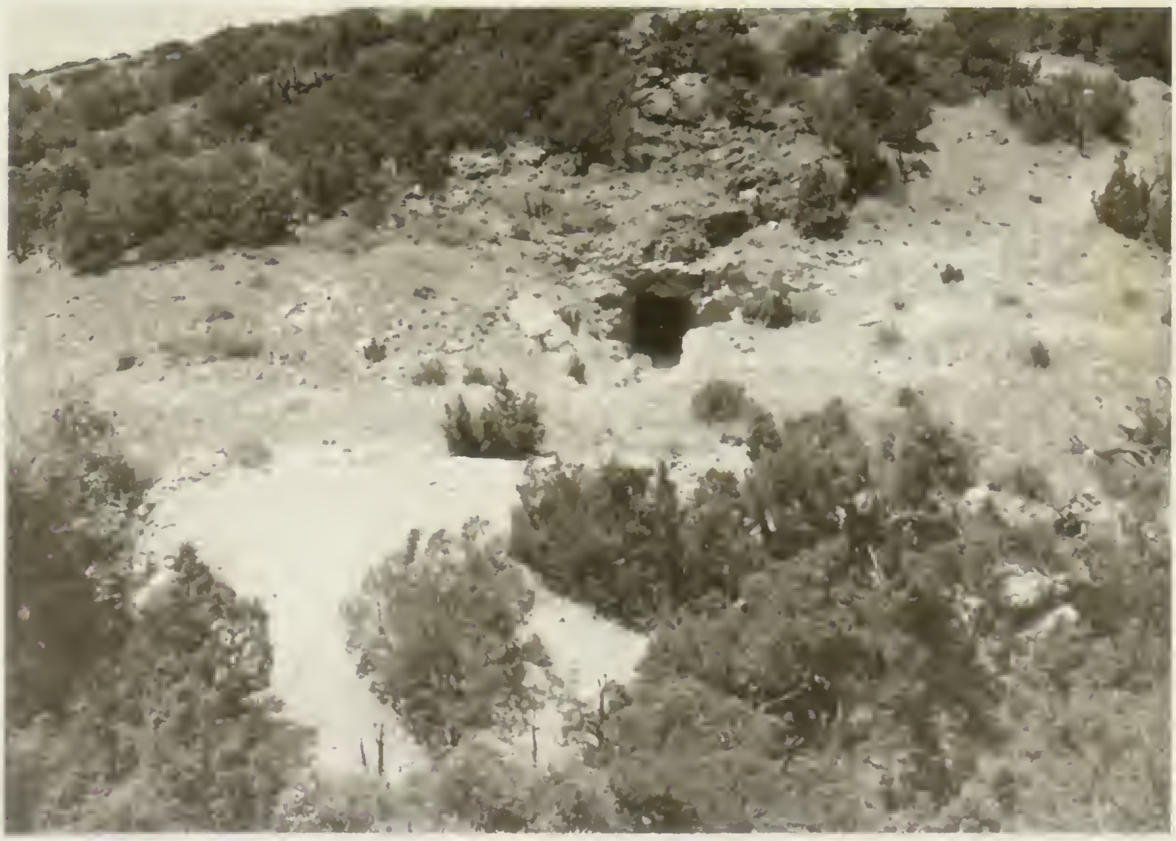


PHOTO 44 - Dandy Southeast site showing adit opening and waste dump.

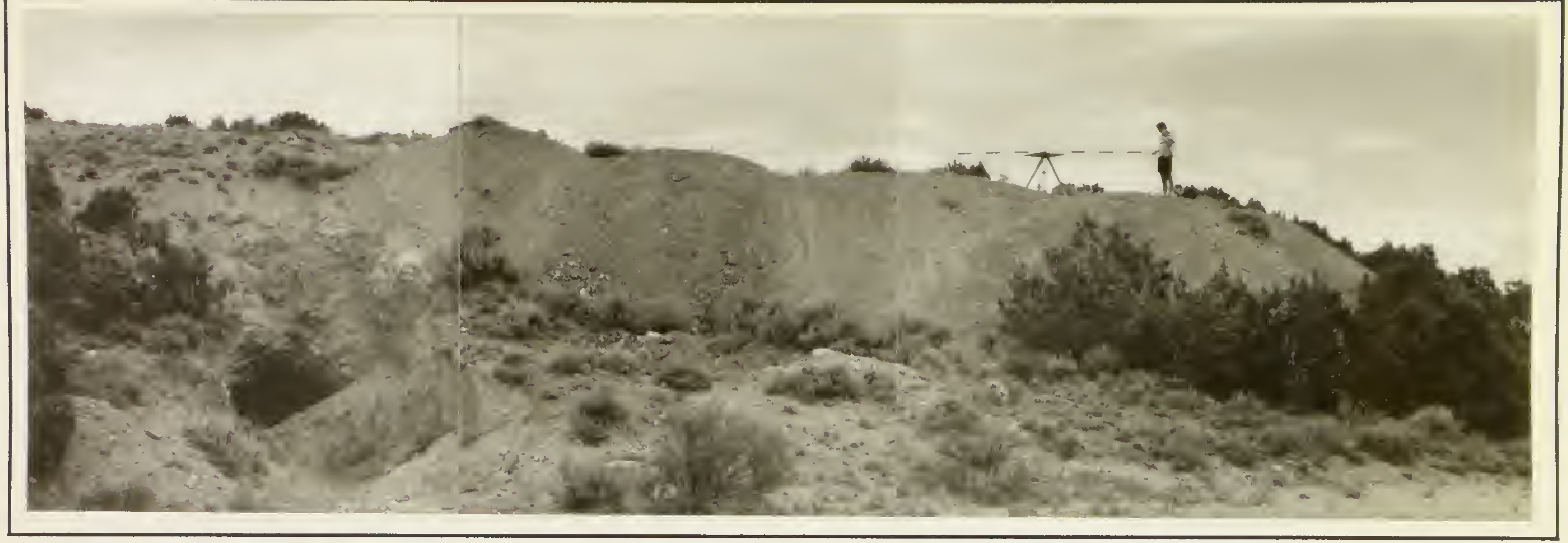


PHOTO 45 - Dandy South site showing the adit 1 opening, excavation, and waste dump 2.

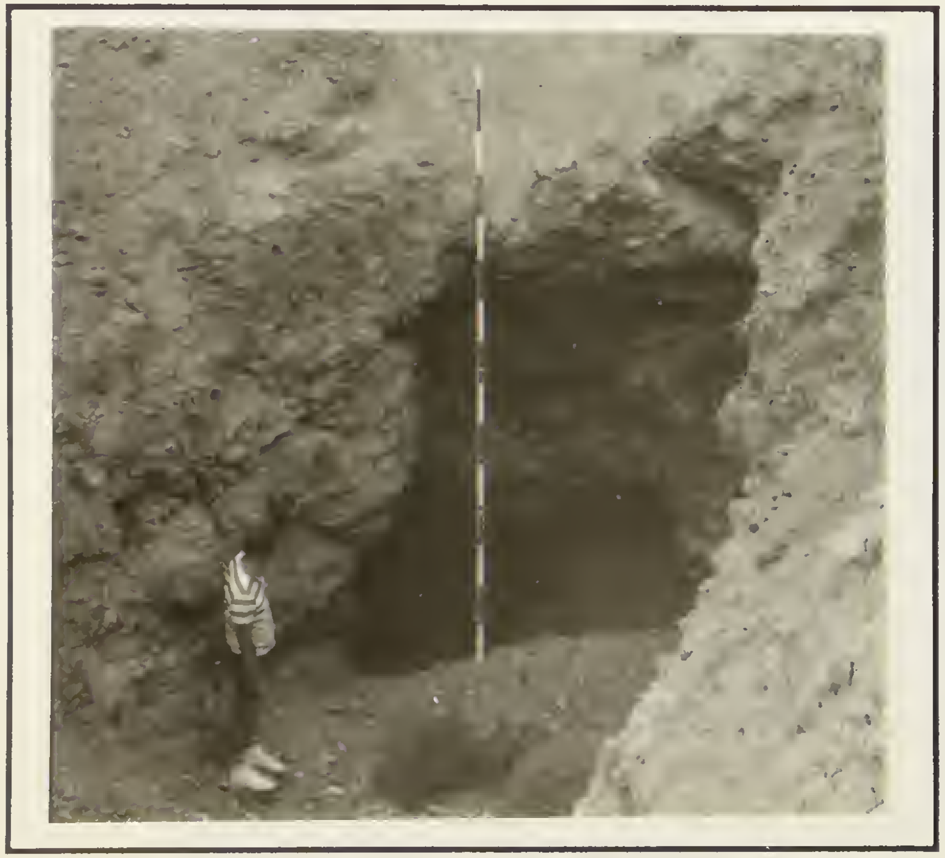


PHOTO 46 - Dandy South site showing the adit 2 opening.

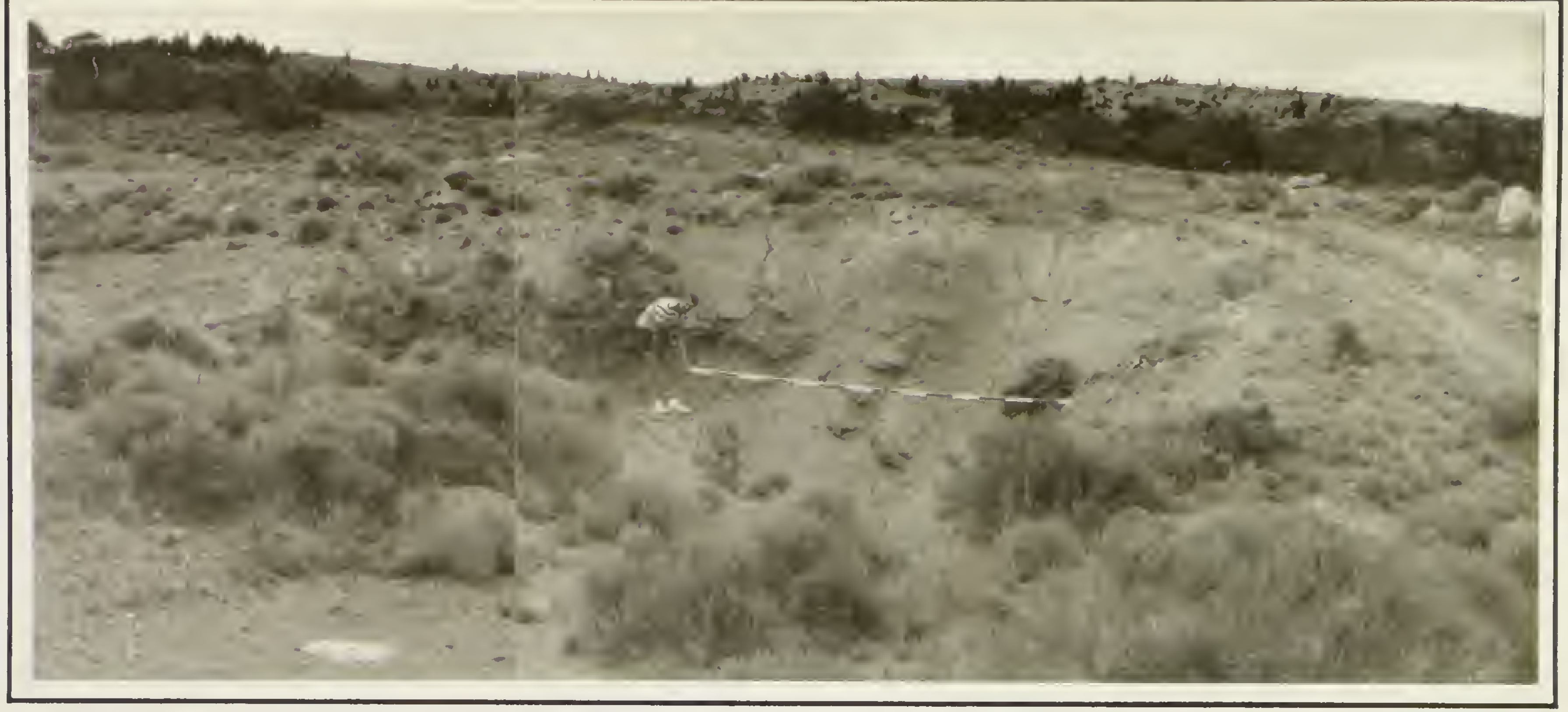


PHOTO 47 - Dandy South site showing the excavated area adjacent to the adit 2 opening. The access road to adit 3 is in the backgroung.

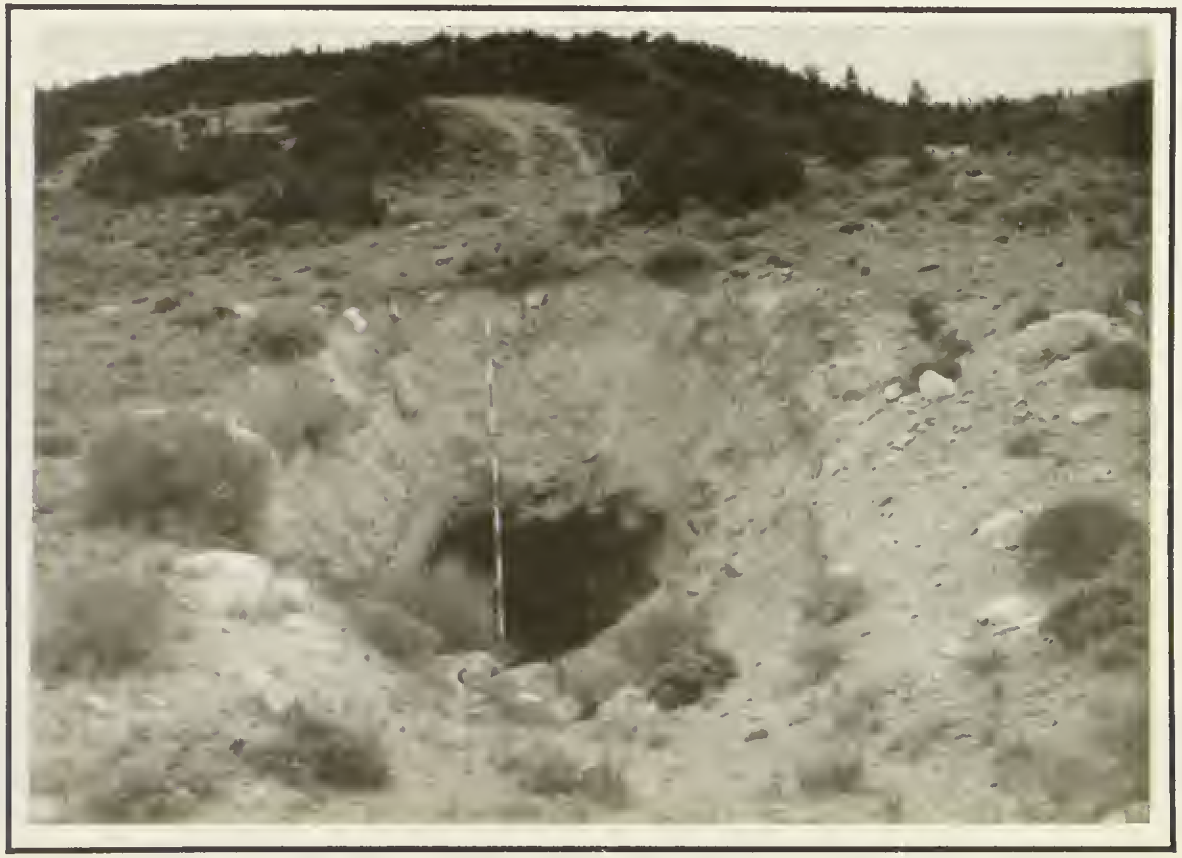


PHOTO 48 - Dandy South site showing the adit 3 opening and the excavated area adjacent to the opening.

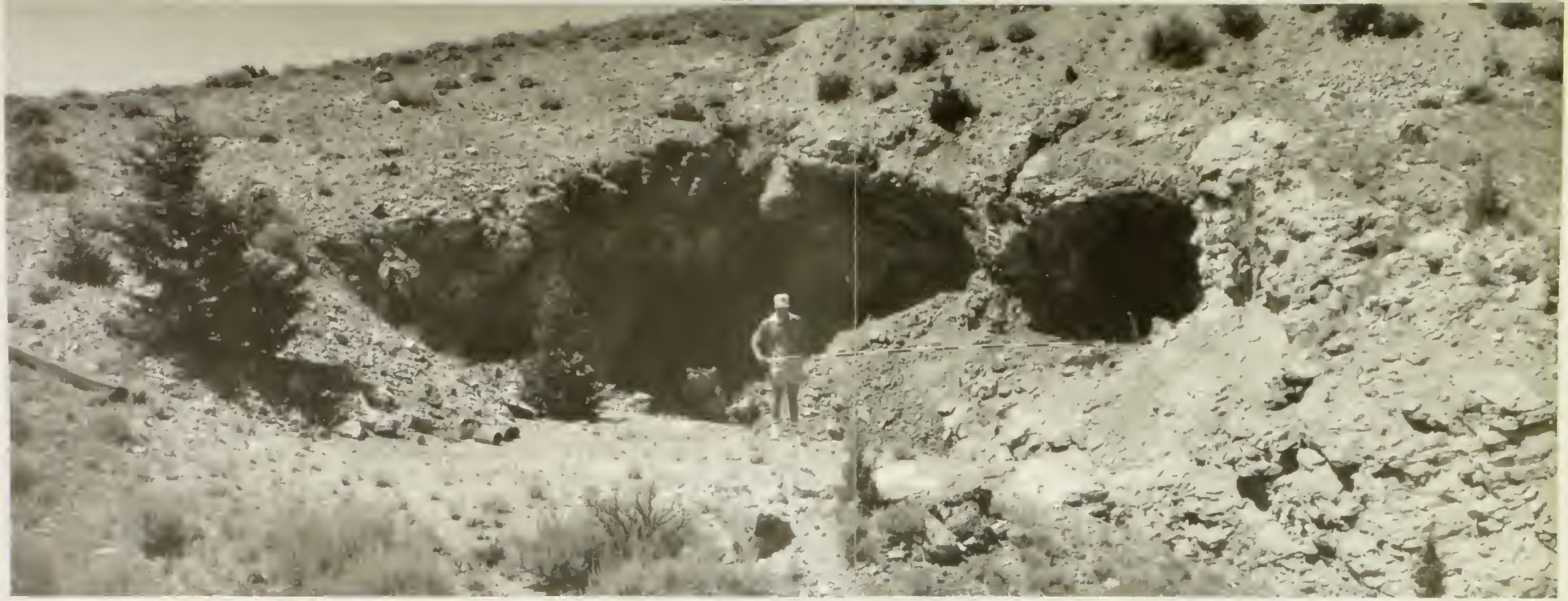


PHOTO 49 - Dandy Central site showing excavated area 1.

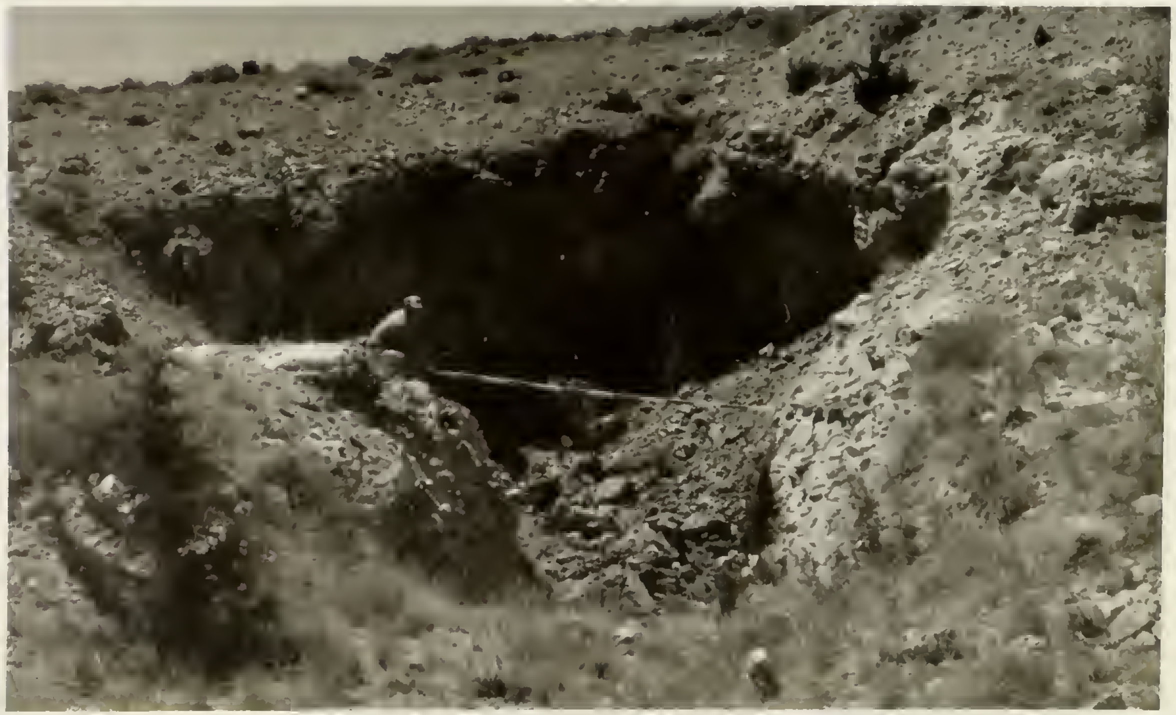


PHOTO 50 - Dandy Central site showing excavation area 1.

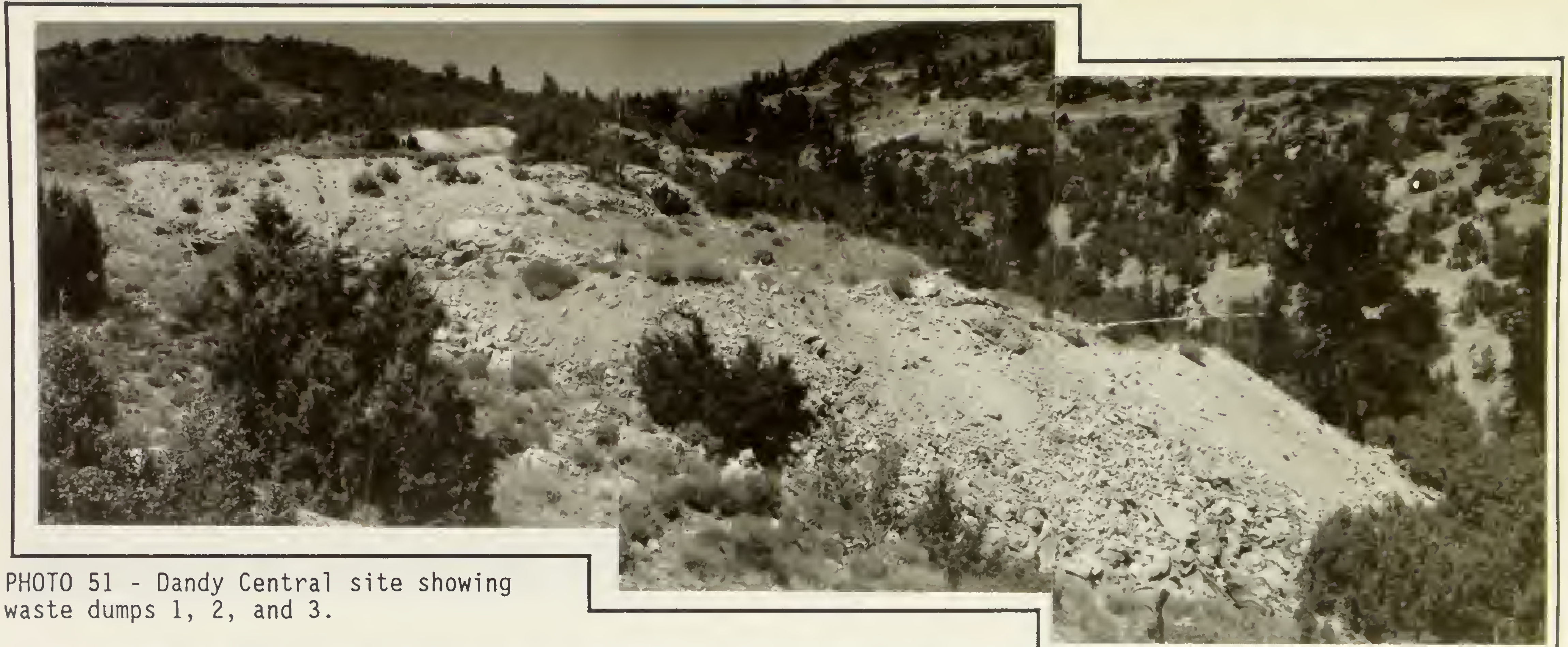


PHOTO 51 - Dandy Central site showing waste dumps 1, 2, and 3.

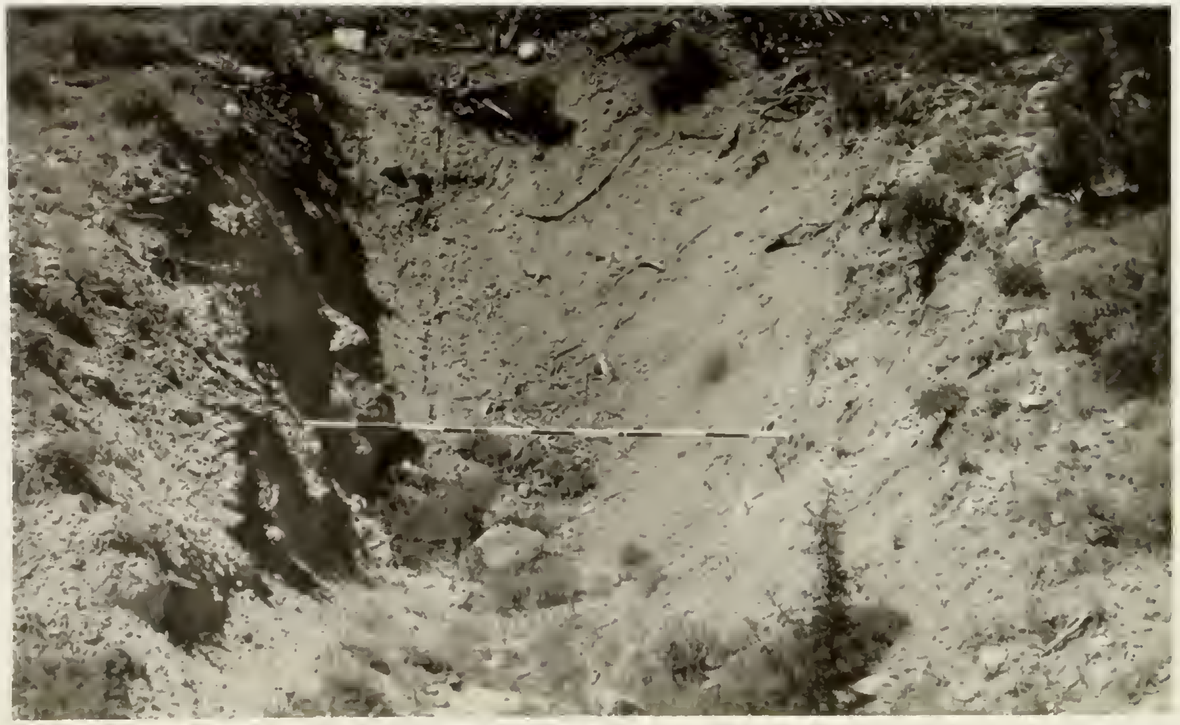


PHOTO 52 - Dandy Central site showing excavated area 2.

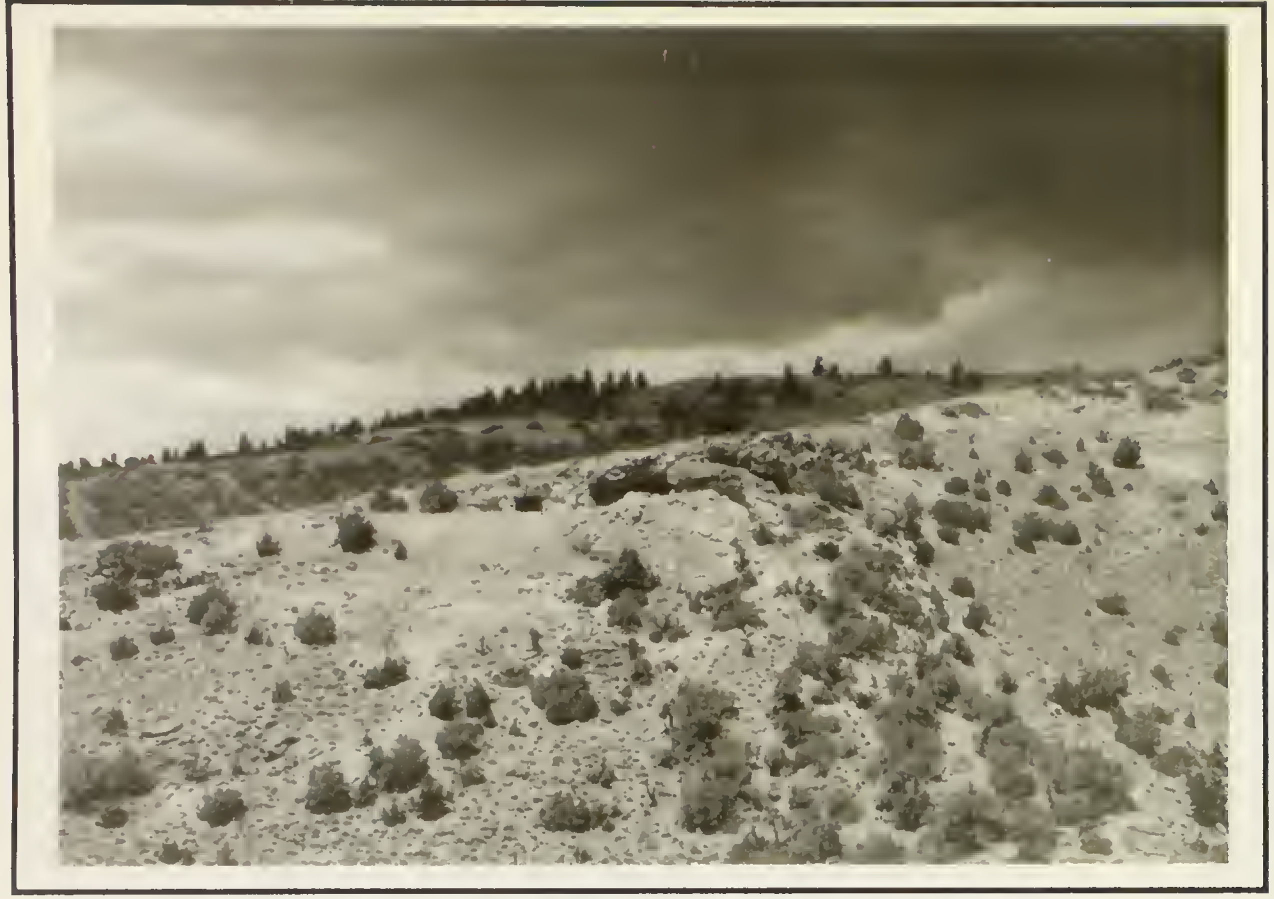


PHOTO 53 - Dandy East site showing adits
1, 2, and 3, and the waste dump.

PHOTO 54 - Dandy East site showing
the adit 1 and adit 2 openings.

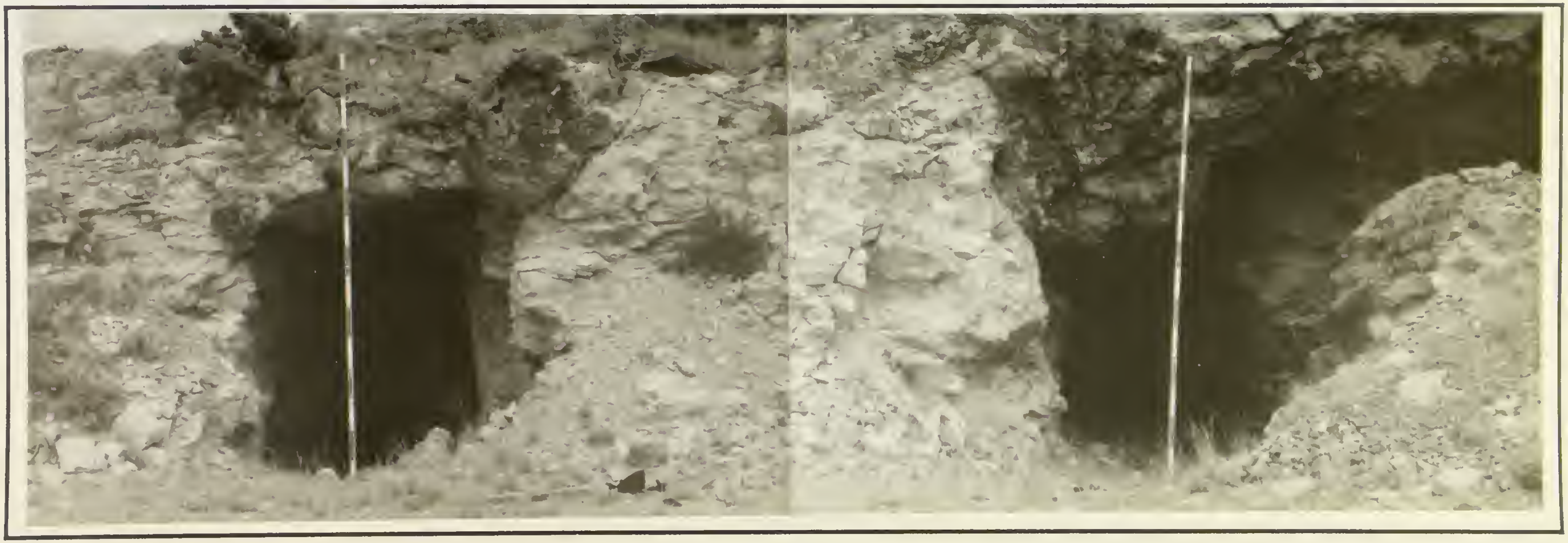


PHOTO 55 - Dandy East site showing the adit 3 opening.

PHOTO 56 - Dandy West Upper site showing shaft 1.

PHOTO 57 - Dandy West Upper site showing shaft 2.

PHOTO 58 - Dandy West Upper site showing the adit 5 opening.

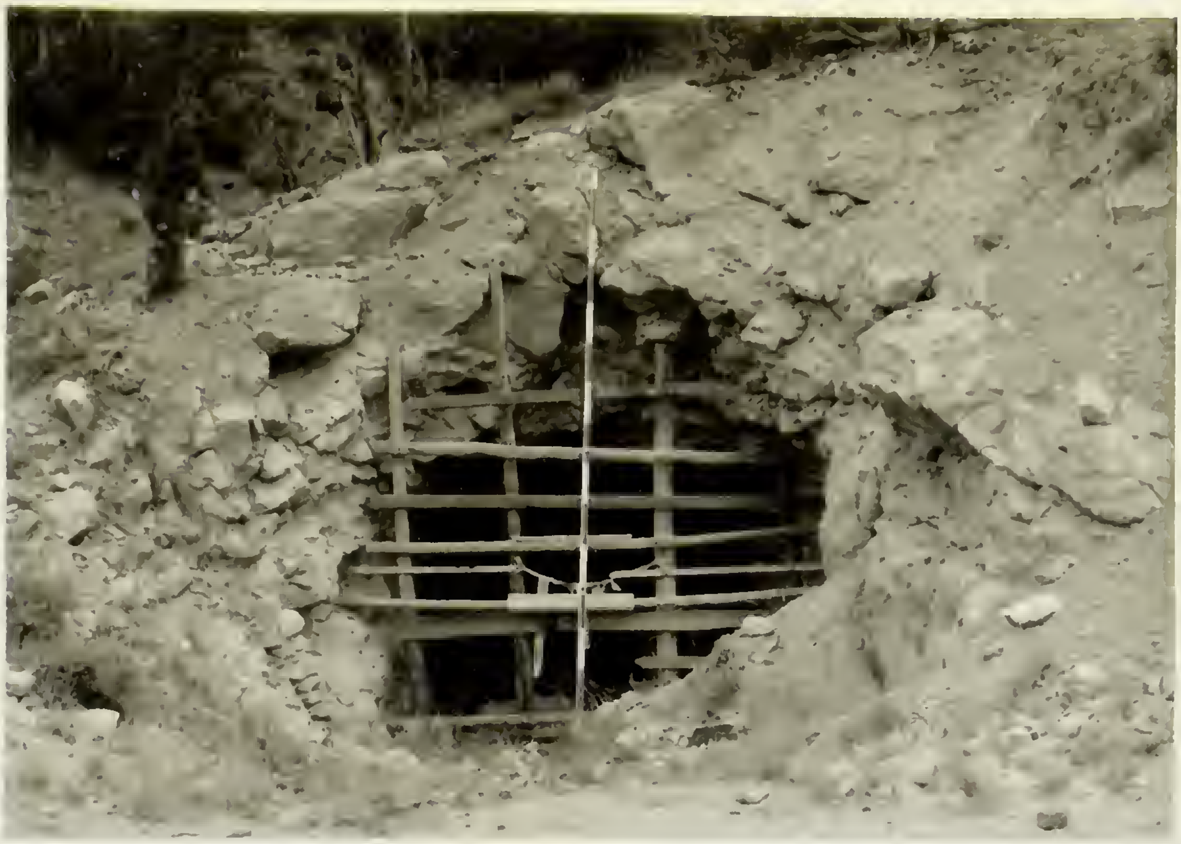


PHOTO 59 - Dandy West Upper site showing the adit 4 opening.

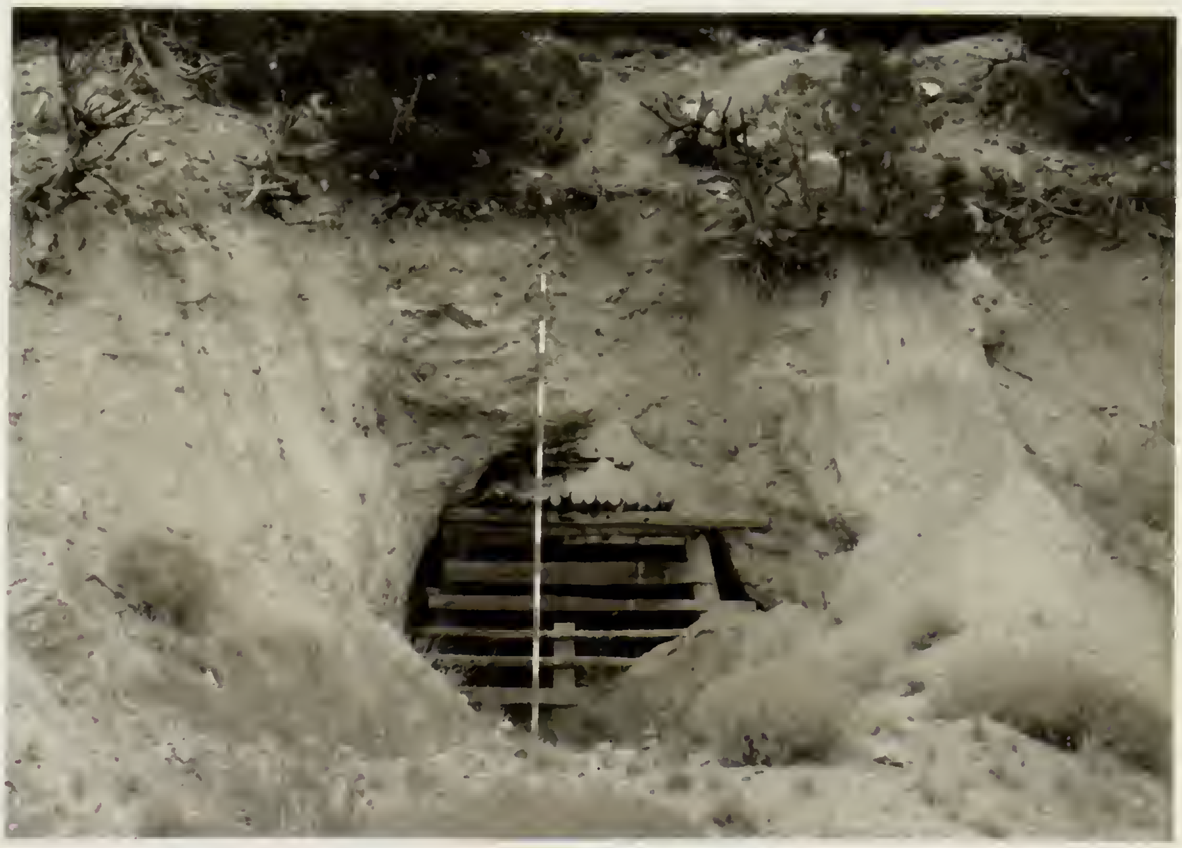


PHOTO 60 - Dandy West Lower site showing the adit 6 opening.

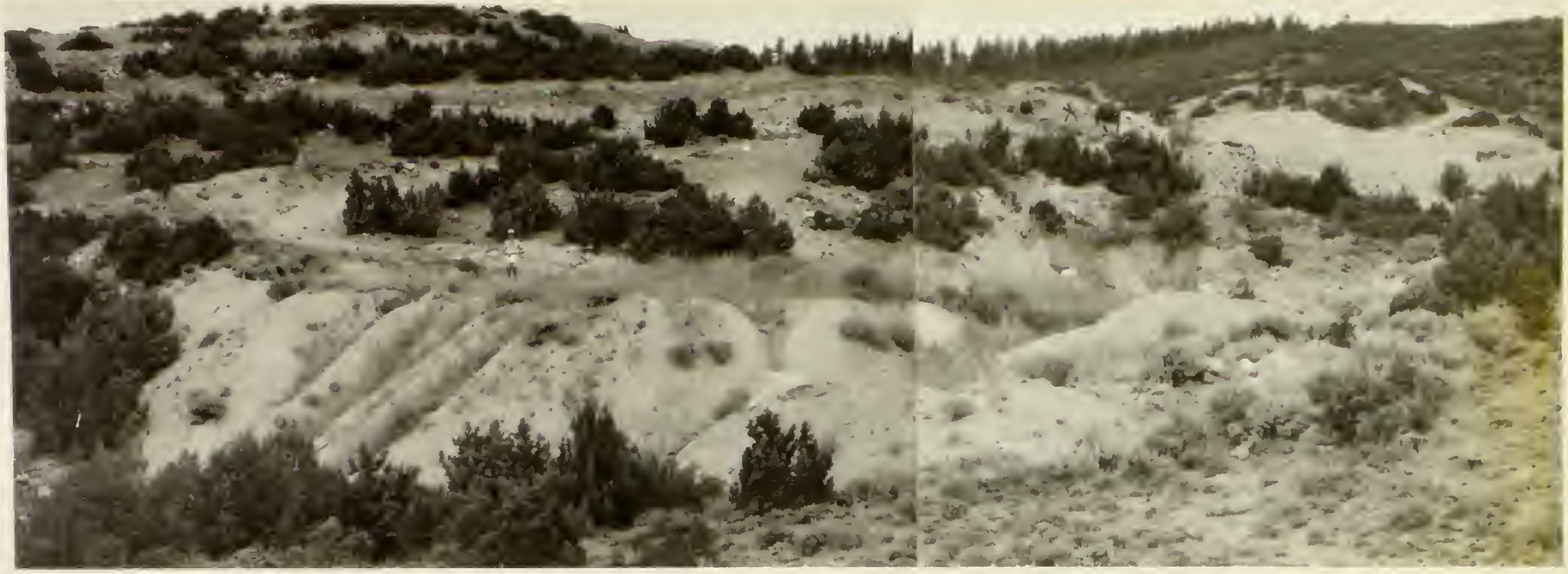


PHOTO 61 - Dandy West Lower site showing waste dump 6, adit 6, and the access road.

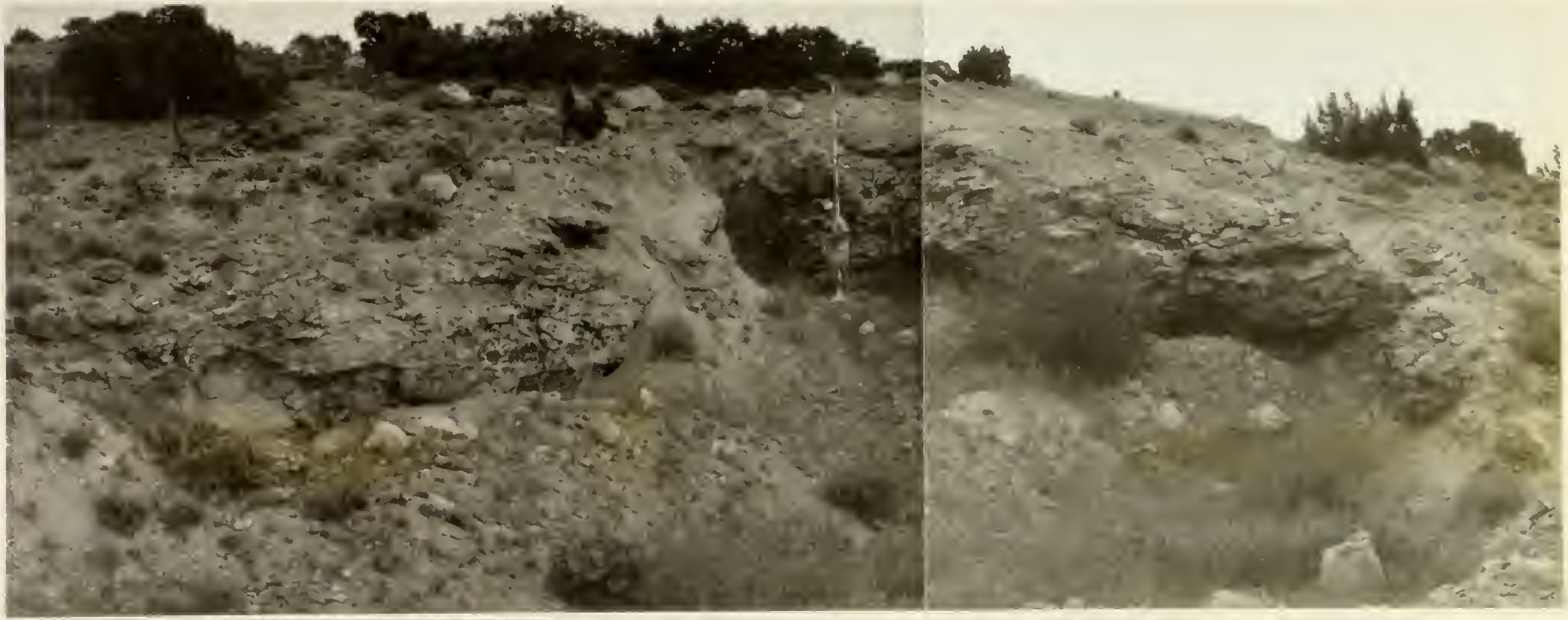
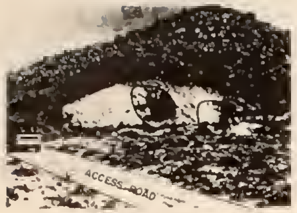


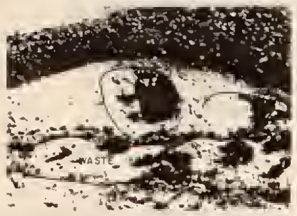
PHOTO 62 - Dandy West Lower site showing excavated area 1.

APPENDIX B

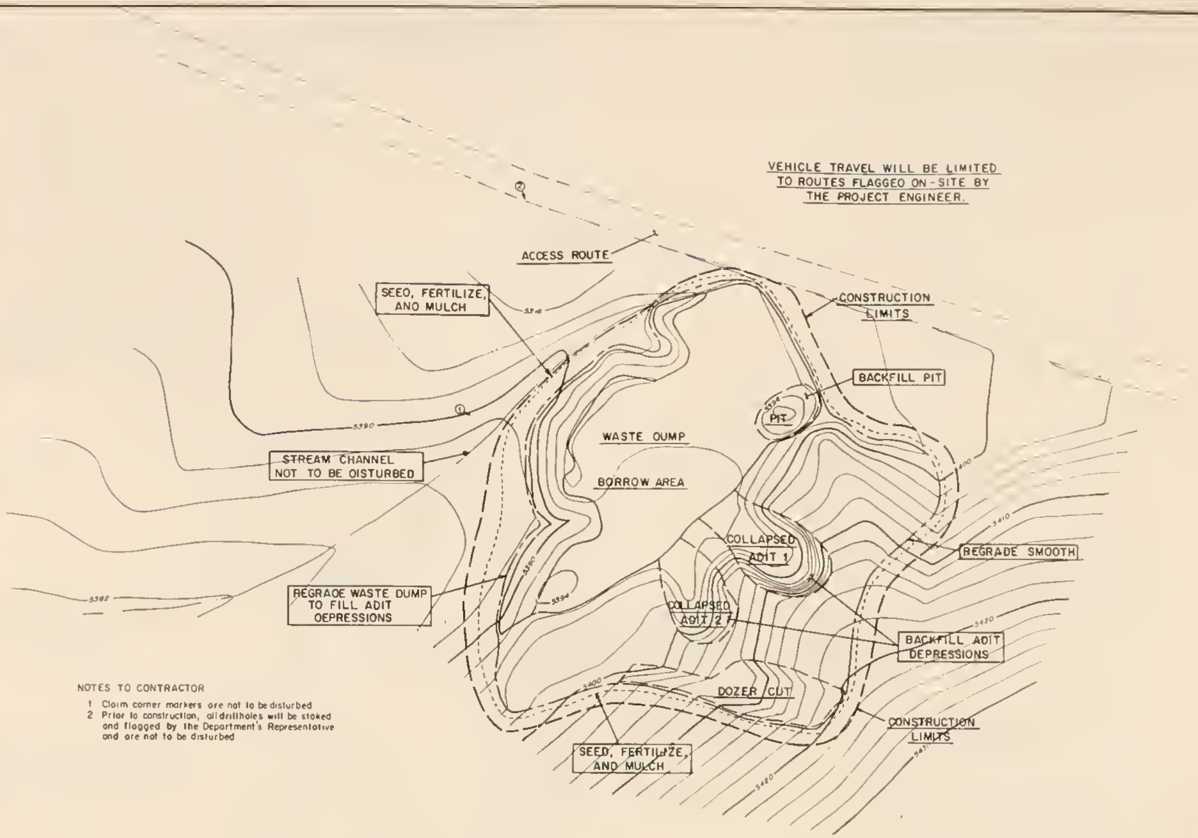
CONSTRUCTION SITE PLANS



① PICTURE 1 SHOWS COLLAPSED ADIT 1, COLLAPSED ADIT 2, AND THE ACCESS ROAD



② PICTURE 2 SHOWS COLLAPSED ADIT 1, COLLAPSED ADIT 2 AND THE WASTE DUMP


VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
②
ACCESS ROUTE
SEED, FERTILIZE, AND MULCH
CONSTRUCTION LIMITS
BACKFILL PIT
PIT
①
5390
STREAM CHANNEL NOT TO BE DISTURBED
WASTE DUMP
BORROW AREA
COLLAPSED ADIT 1
REGRADE SMOOTH
5410
REGRADE WASTE DUMP TO FILL ADIT DEPRESSIONS
5388
COLLAPSED ADIT 2
BACKFILL ADIT DEPRESSIONS
5420
DOZER CUT
5400
CONSTRUCTION LIMITS
SEED, FERTILIZE, AND MULCH
5420

NOTES TO CONTRACTOR

1. Claim corner markers are not to be disturbed
2. Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

N

SCALE IN FEET

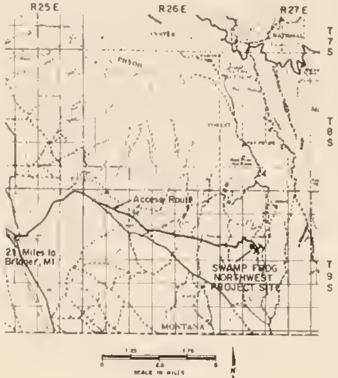
CONTOUR INTERVAL – 5 FT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

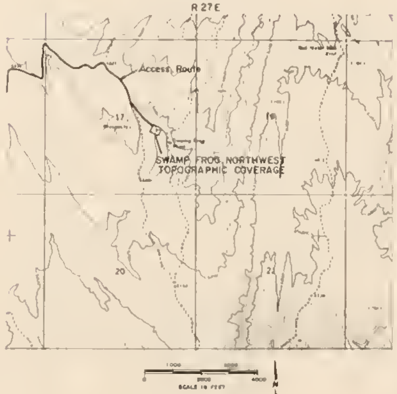
LEGEND

—5025—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

SITE PLAN AND GENERAL LAYOUT

SWAMP FROG NORTHWEST SITE
SECTION 17, T 9 S, R 27 E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLD
CHECKED BY:
APPROVED BY:

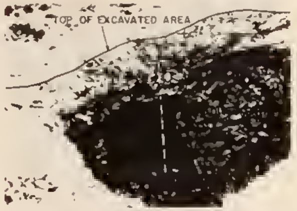
REVISIONS		
NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

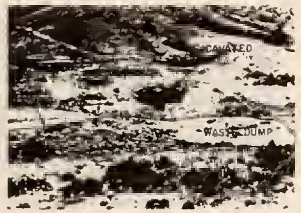
SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 1

① PICTURE 1 SHOWS ONE OF THE TWO ADIT OPENINGS



② PICTURE 2 SHOWS ONE OF THE TWO ADIT OPENINGS AND THE TOP OF THE EXCAVATED AREA



③ PICTURE 3 SHOWS THE EXCAVATED AREA, THE ACCESS ROAD, AND THE WASTE DUMP

NOTES TO CONTRACTOR:

1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

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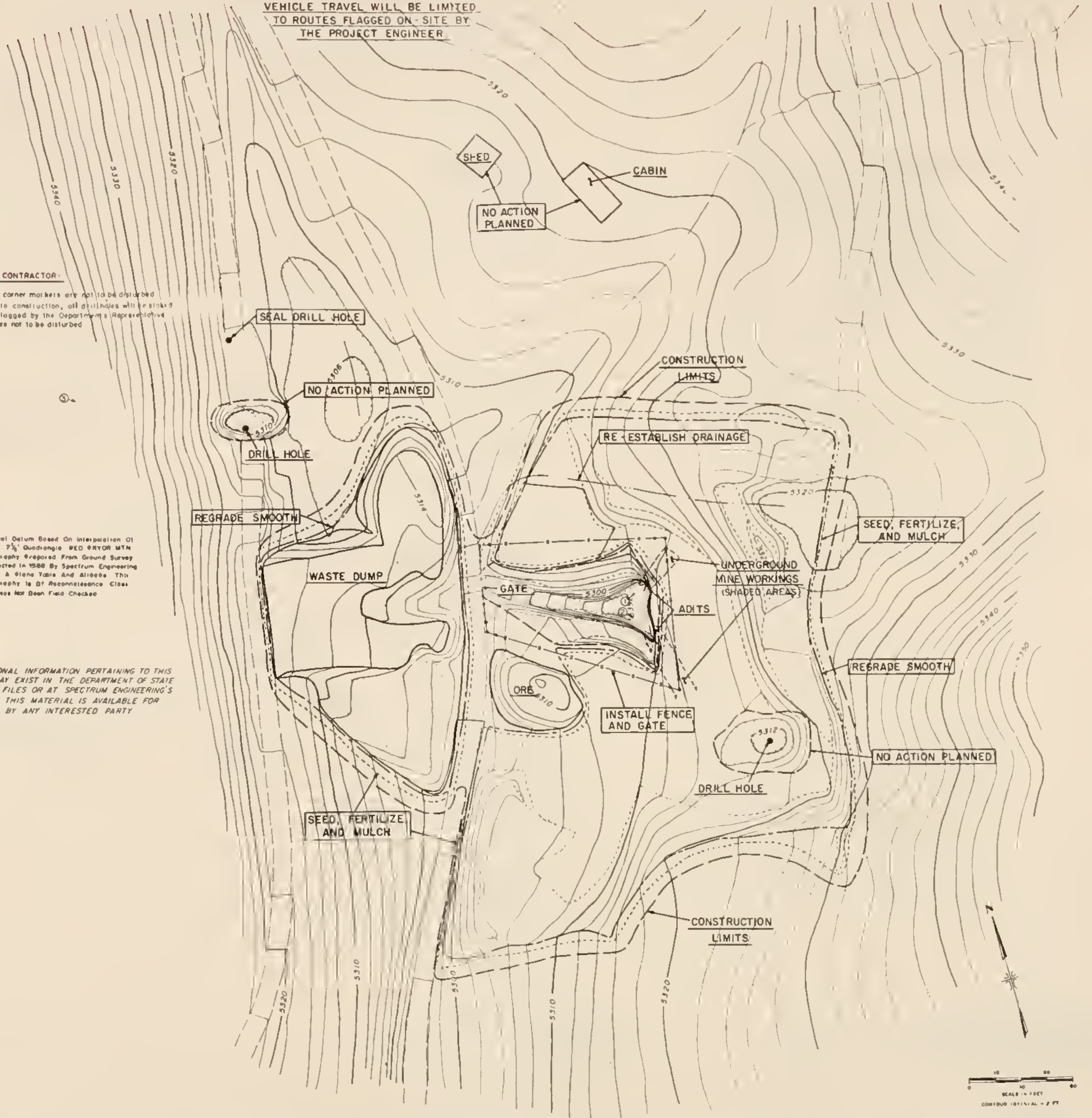
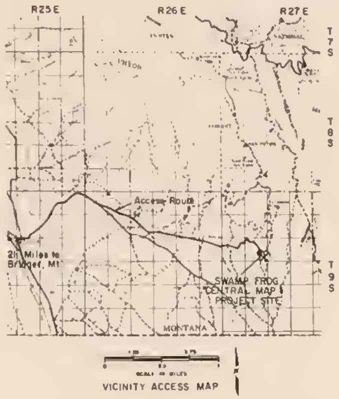
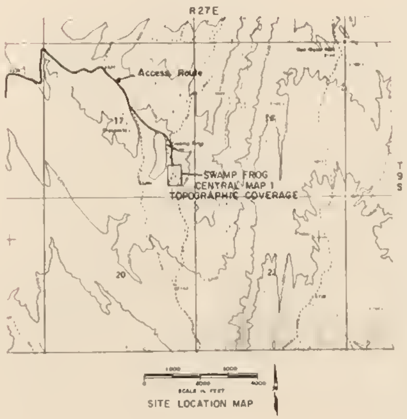


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

LEGEND

—5329—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

NOTICE

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SITE PLAN AND GENERAL LAYOUT

SWAMP FROG CENTRAL MAP 1 SITE

SECTION 17, T 9 S, R 27 E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLD
CHECKED BY:
APPROVED BY:
REVISIONS: NO DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 2

① PICTURE 1 SHOWS EXCAVATION PIT 1

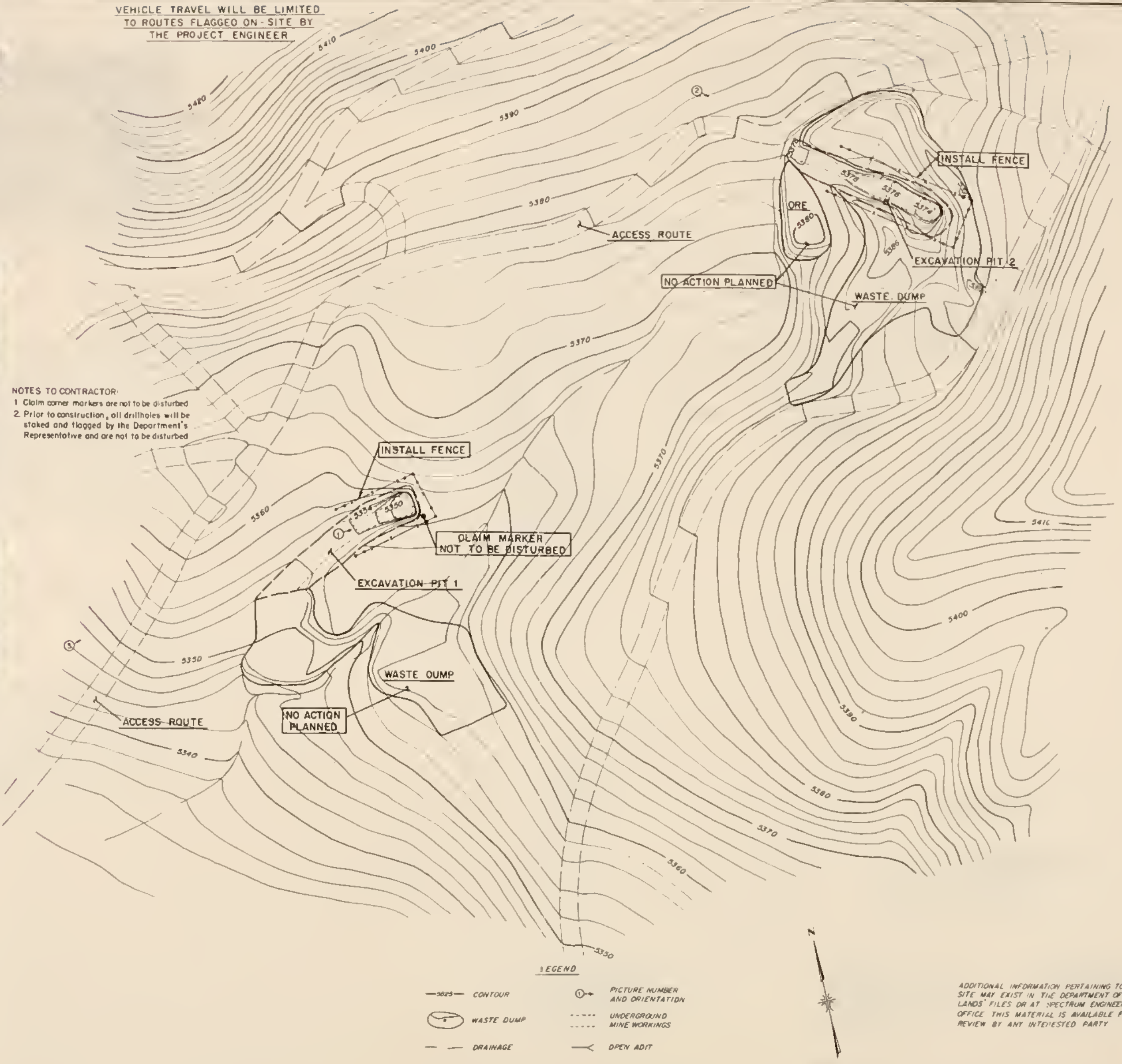
② PICTURE 2 SHOWS EXCAVATION PIT 2 AND THE ORE PILE

③ PICTURE 3 SHOWS EXCAVATED PIT 1, THE ORE PILE ADJACENT TO EXCAVATED PIT 2 AND THE ACCESS ROUTE

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER

NOTES TO CONTRACTOR:

1 Claim corner markers are not to be disturbed
2. Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed



Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LEGEND

—5625—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
⬭	WASTE DUMP	- - - -	UNDERGROUND MINE WORKINGS
— —	DRAINAGE	—<	OPEN ADIT

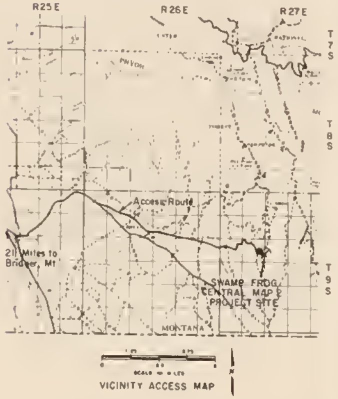
LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

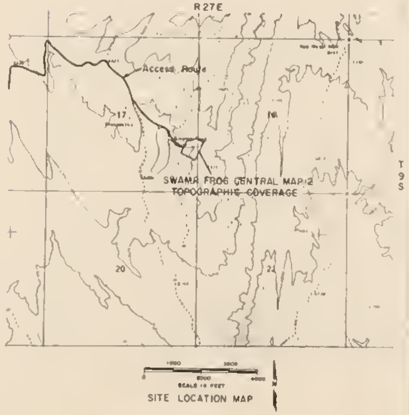
MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

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SITE PLAN AND GENERAL LAYOUT

SWAMP FROG CENTRAL MAP 2 SITE
SECTION 17, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

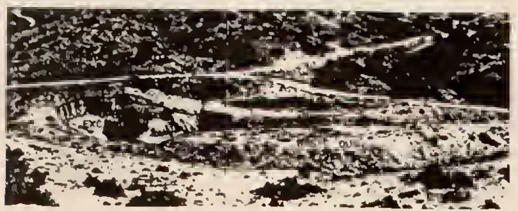
DATE: October 1988
DRAWN BY: DLO
CHECKED BY
APPROVED BY

NO	DATE	BY

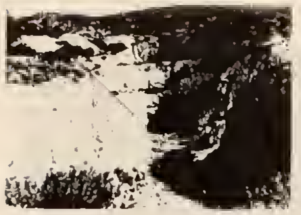
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 3



① PICTURE 1 SHOWS THE ACCESS ROAD, THE OPEN EXCAVATION, AND THE LARGE WASTE DUMP



② PICTURE 2 SHOWS THE TRENCH LEADING TO THE OPEN EXCAVATION

③ PICTURE 3 SHOWS THE OPEN EXCAVATION

NOTES TO CONTRACTOR

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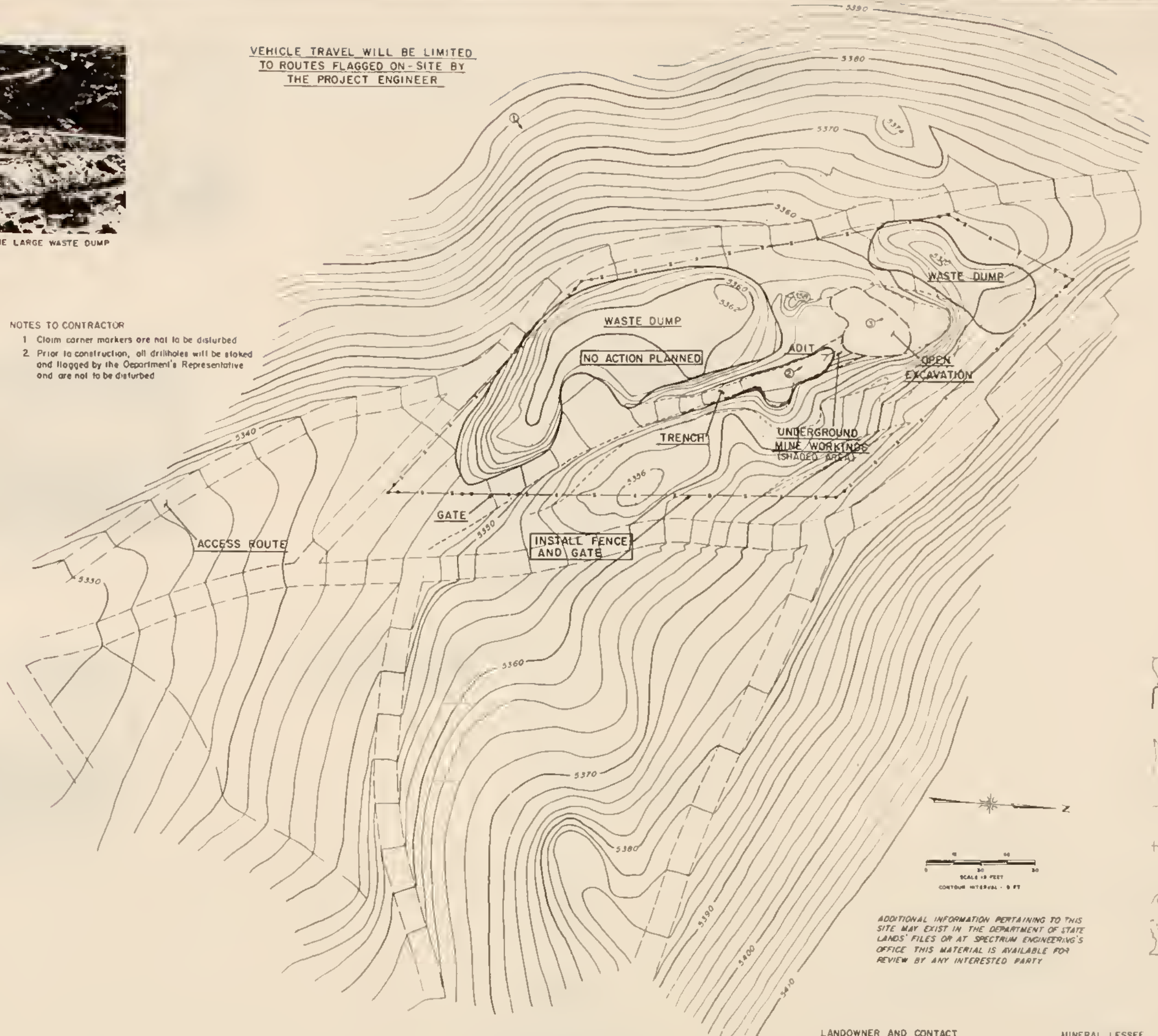
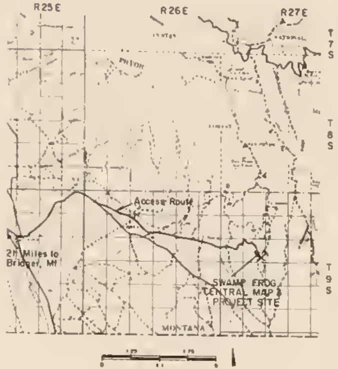


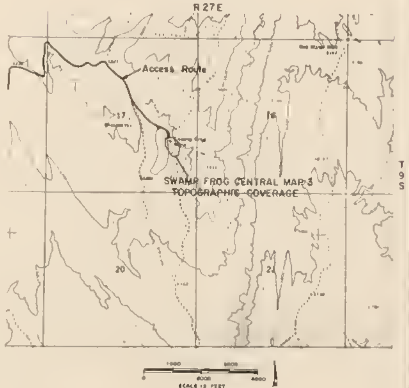
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LEGEND

—5625—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
⬭	WASTE DUMP	- - - - -	UNDERGROUND MINE WORKINGS
— —	DRAINAGE	—<	OPEN ADIT

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

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SITE PLAN AND GENERAL LAYOUT

SWAMP FROG CENTRAL MAP 3 SITE

SECTION 17, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE October 1988
DRAWN BY DLO
CHECKED BY
APPROVED BY

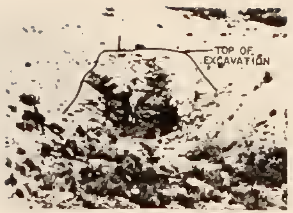
REVISIONS NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

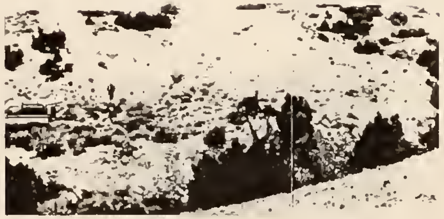
CONSTRUCTION SITE PLAN, SHEET 4

① PICTURE 1 IS LOOKING INTO THE OPEN ADIT

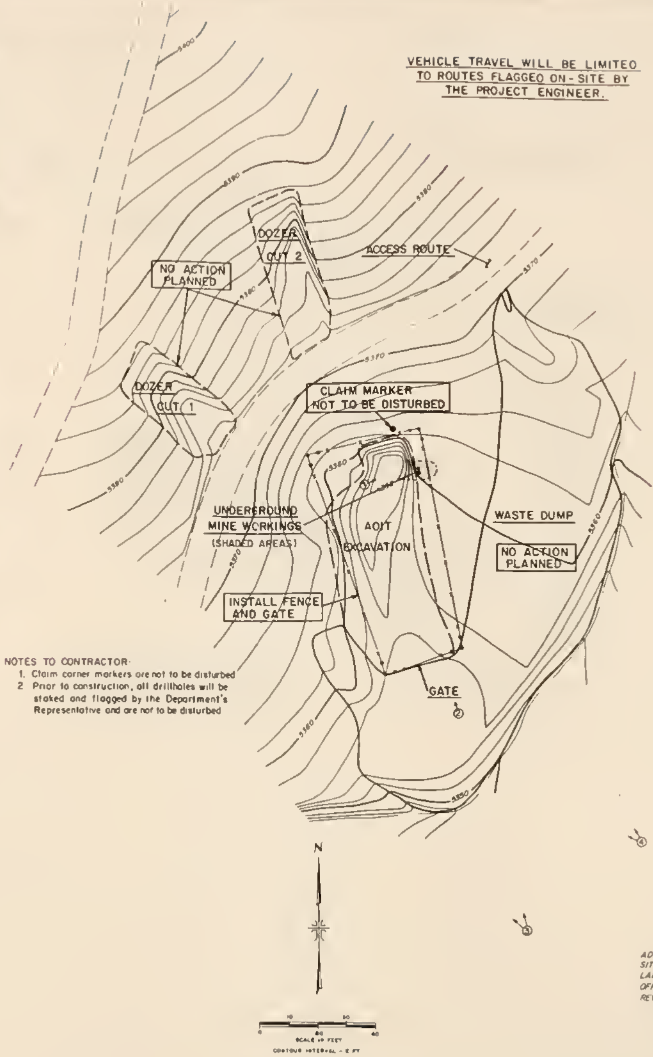


② PICTURE 2 SHOWS THE ADIT EXCAVATION

③ PICTURE 3 SHOWS THE ADIT EXCAVATION AND A PORTION OF THE WASTE DUMP



④ PICTURE 4 SHOWS THE WASTE DUMP IN THE FOREGROUND AND THE ADIT EXCAVATION IN THE BACKGROUND



VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

NOTES TO CONTRACTOR:

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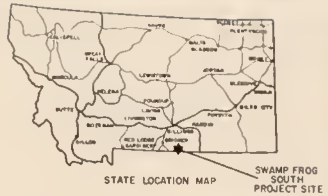
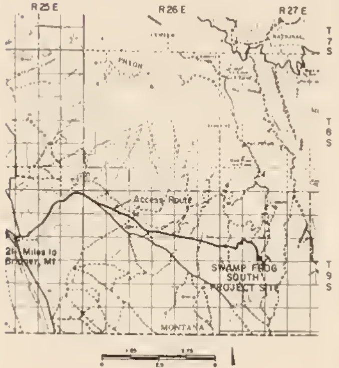
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle-RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

LEGEND

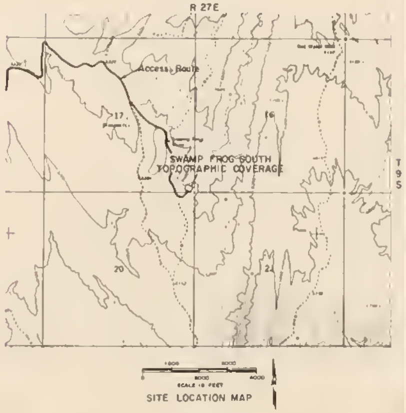
—5625— *CONTOUR*	①→ *PICTURE NUMBER AND ORIENTATION*
WASTE DUMP	----- *UNDERGROUND MINE WORKINGS*
— — *DRAINAGE*	—< *OPEN ADIT*



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
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MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
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NOTICE

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SITE PLAN AND GENERAL LAYOUT

SWAMP FROG SOUTH SITE
SECTION 17, T 9 S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

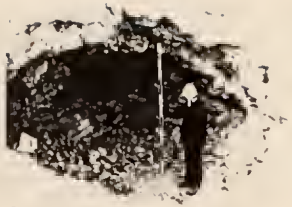
DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

REVISIONS		
NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

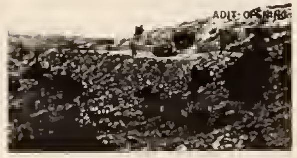
SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 5

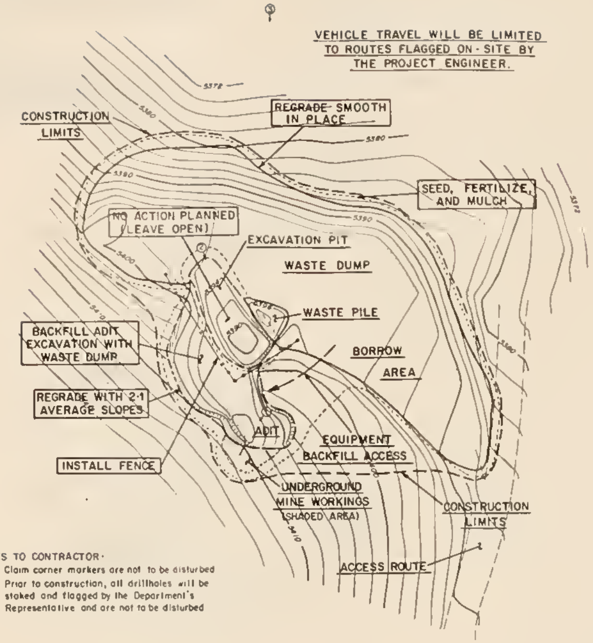


① PICTURE 1 SHOWS THE OPEN ADIT

② PICTURE 2 SHOWS THE OPEN ADIT AND A PORTION OF THE EXCAVATED AREA



③ PICTURE 3 SHOWS THE OPEN ADIT AND THE WASTE PILE


③
CONSTRUCTION LIMITS
REGRADE SMOOTH IN PLACE
5378
5380
5390
5400
5410
SEED, FERTILIZE, AND MULCH
NO ACTION PLANNED (LEAVE OPEN)
①
EXCAVATION PIT
WASTE DUMP
WASTE PILE
BACKFILL ADIT EXCAVATION WITH WASTE DUMP
BORROW AREA
REGRADE WITH 2:1 AVERAGE SLOPES
ADIT
EQUIPMENT BACKFILL ACCESS
INSTALL FENCE
UNDERGROUND MINE WORKINGS (SHADED AREA)
CONSTRUCTION LIMITS
ACCESS ROUTE

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

NOTES TO CONTRACTOR:
1. Claim corner markers are not to be disturbed
2. Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - RED PRYOR MTN Topography Prepared From Ground Survey Conducted in 1988 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LEGEND

—5425—	*CONTOUR*	⊙→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - - - • • • • •	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

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LANDOWNER AND CONTACT

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BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
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MINERAL LESSEE

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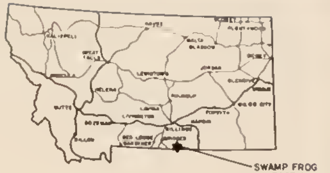
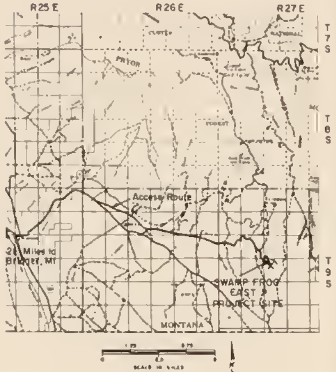
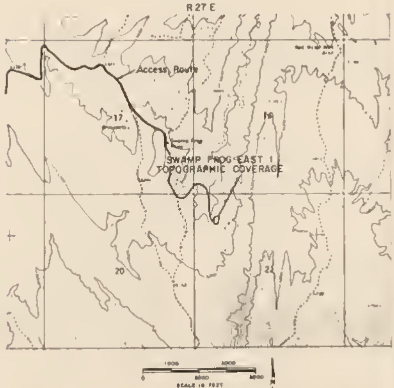


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

SWAMP FROG EAST 1 SITE

SECTION 21, T 9 S, R27E
CARBON COUNTY, MONTANA

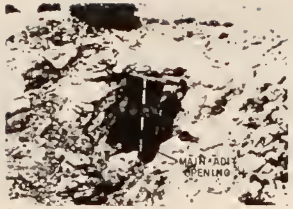
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:
REVISIONS NO. DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 6



① PICTURE 1 SHOWS THE MAIN ADIT OPENING

② PICTURE 2 SHOWS THE ADIT OPENING AND THE EXCAVATED AREA

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

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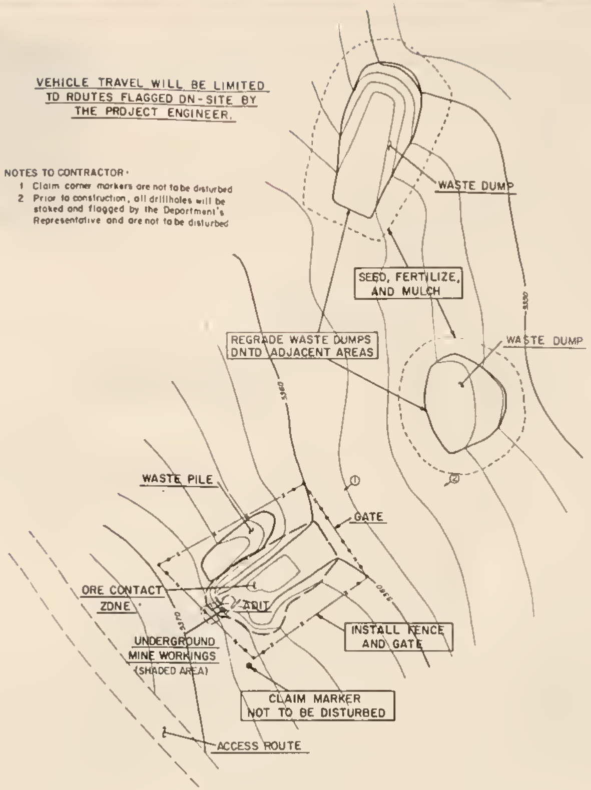

WASTE DUMP
SEED, FERTILIZE, AND MULCH
REGRADE WASTE DUMPS ONTO ADJACENT AREAS
WASTE DUMP
5380
5390
WASTE PILE
GATE
①
②
ORE CONTACT ZONE
ADIT
5380
5375
UNDERGROUND MINE WORKINGS (SHADED AREA)
INSTALL FENCE AND GATE
CLAIM MARKER NOT TO BE DISTURBED
ACCESS ROUTE

Vertical Datum Based On Interpretation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LEGEND

—5825— CONTOUR

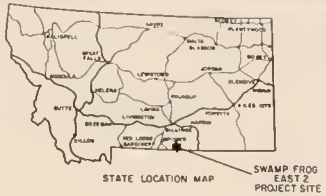
WASTE DUMP

— — DRAINAGE

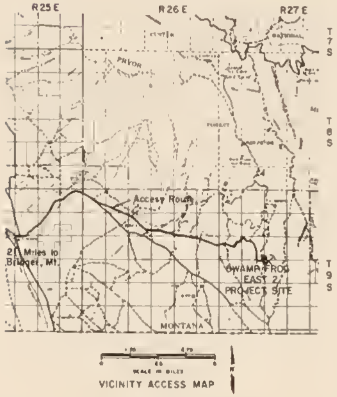
①→ PICTURE NUMBER AND ORIENTATION

- - - - - UNDERGROUND MINE WORKINGS

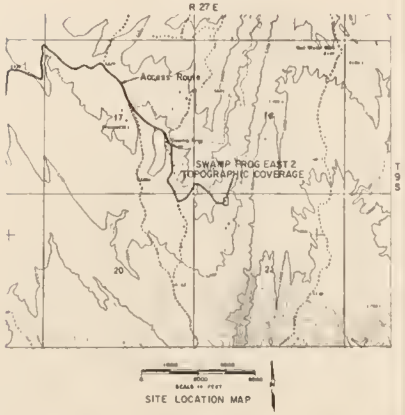
—< OPEN ADIT



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1500 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

SITE PLAN AND GENERAL LAYOUT

SWAMP FROG EAST 2 SITE
SECTION 21, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

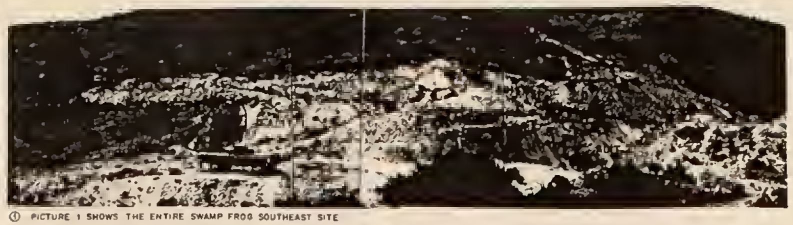
DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

REVISIONS		
NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

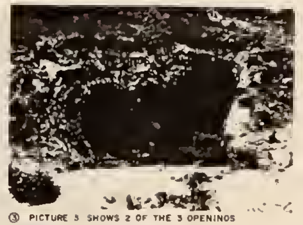
SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 7

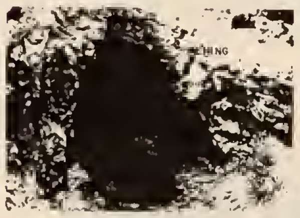


① PICTURE 1 SHOWS THE ENTIRE SWAMP FROG SOUTHEAST SITE

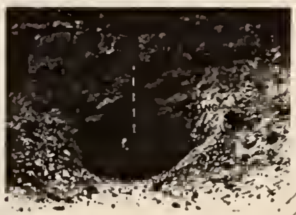
② PICTURE 2 SHOWS ADIT 4



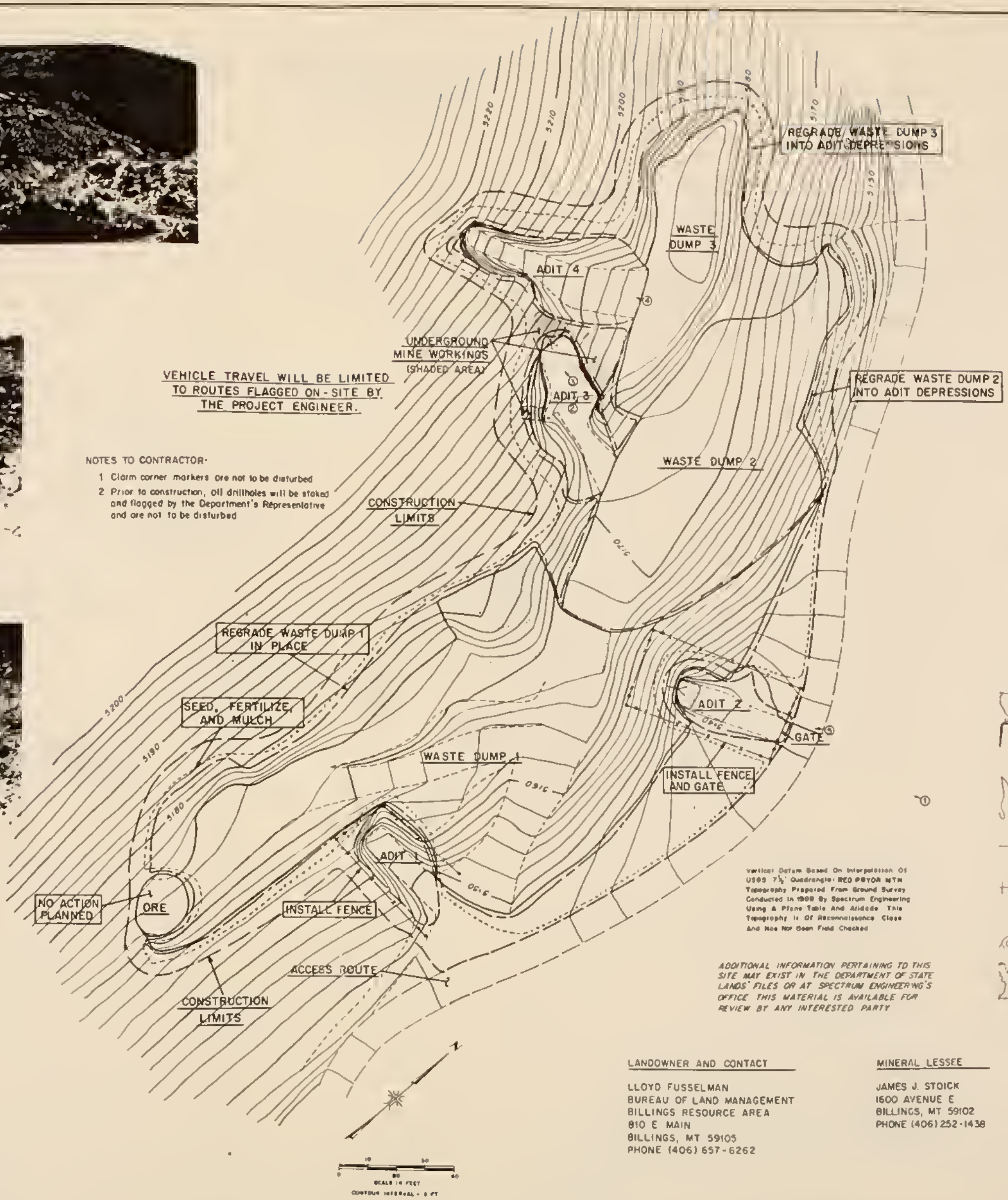
③ PICTURE 3 SHOWS 2 OF THE 3 OPENINGS ASSOCIATED WITH ADIT 3.



④ PICTURE 4 SHOWS 2 OF THE 3 OPENINGS ASSOCIATED WITH ADIT 3



⑤ PICTURE 5 SHOWS ADIT 2



VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

NOTES TO CONTRACTOR:

1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J. STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

LEGEND

—5225—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

NOTICE

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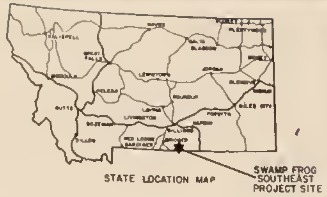
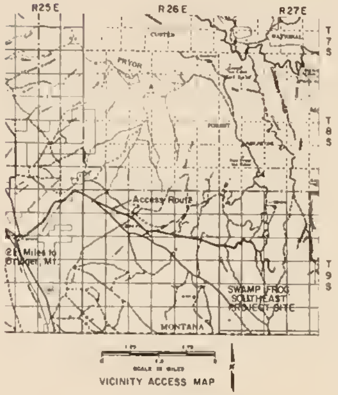
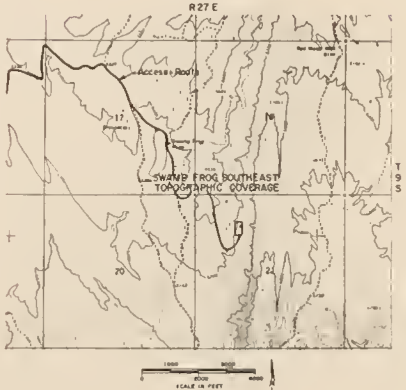


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

SWAMP FROG SOUTHEAST SITE
SECTION 17, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1990
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

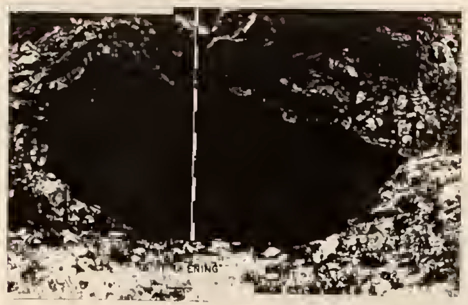
REVISIONS NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

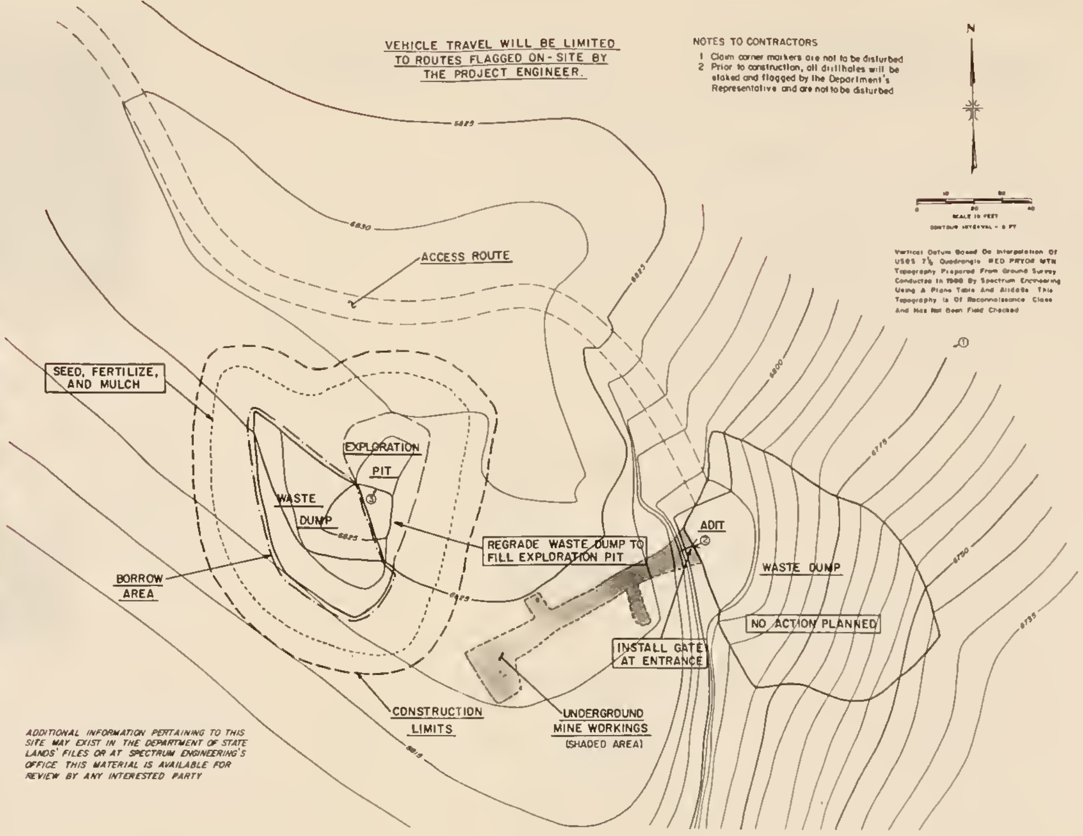
CONSTRUCTION SITE PLAN, SHEET 8

① PICTURE 1 SHOWS THE ADIT OPENING, THE WASTE DUMP AND THE ACCESS ROUTE



② PICTURE 2 SHOWS THE ADIT OPENING

③ PICTURE 3 SHOWS THE EXPLORATION PIT



NOTES TO CONTRACTORS

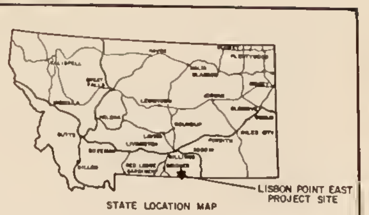
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

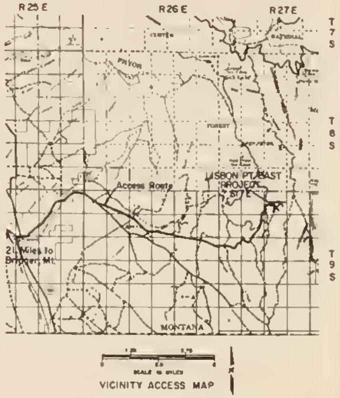
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LEGEND

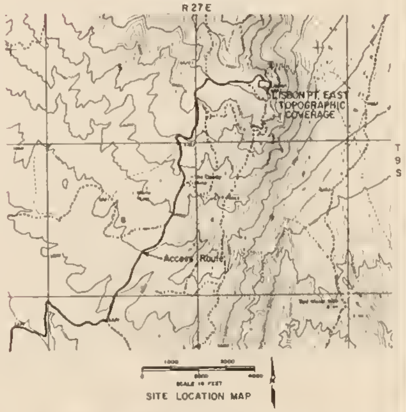
- CONTOUR
- WASTE DUMP
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

LISBON POINT EAST SITE
SECTION 4, T 9 S, R 27 E
CARBON COUNTY, MONTANA

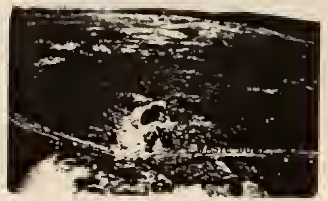
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: OLO
CHECKED BY:
APPROVED BY:
REVISIONS NO. DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

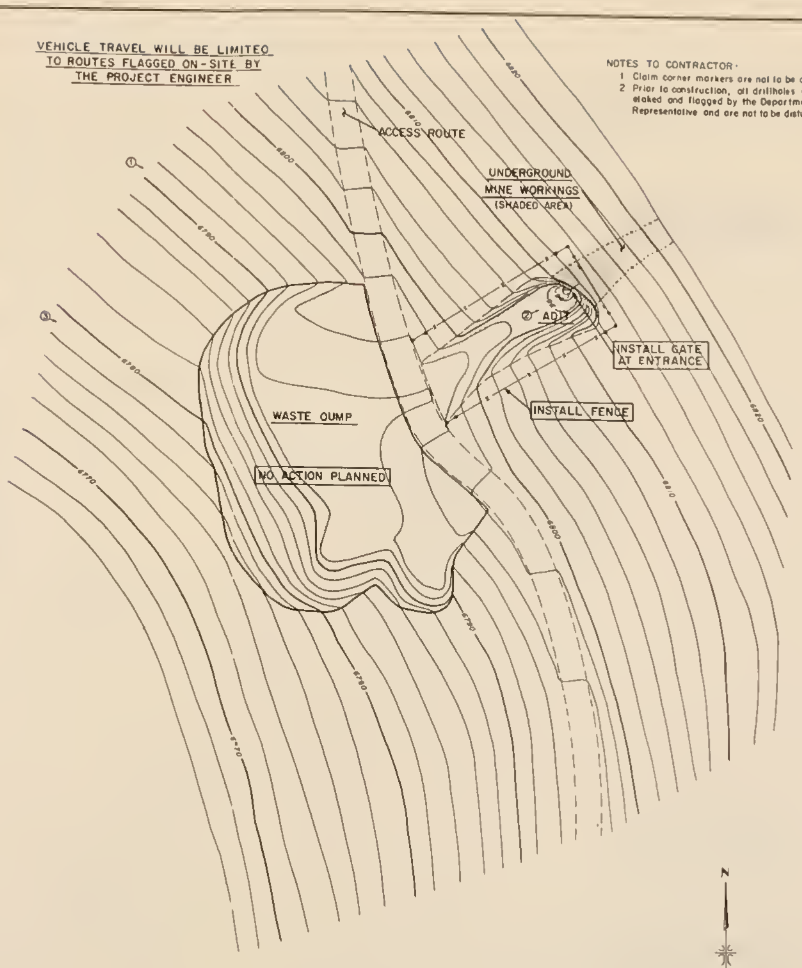
CONSTRUCTION SITE PLAN, SHEET 9



① PICTURE 1 SHOWS THE ADIT OPENING, THE EXCAVATED AREA ADJACENT TO THE ADIT, THE ACCESS ROAD, AND A PORTION OF THE WASTE DUMP

② PICTURE 2 SHOWS THE ADIT OPENING.

③ PICTURE 3 SHOWS THE WASTE DUMP.



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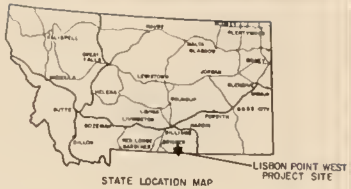
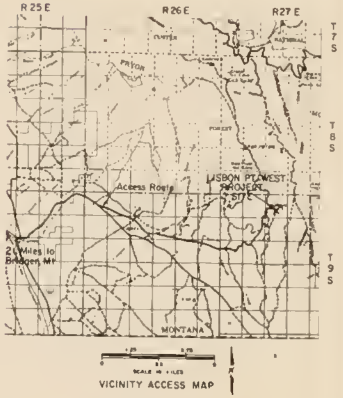
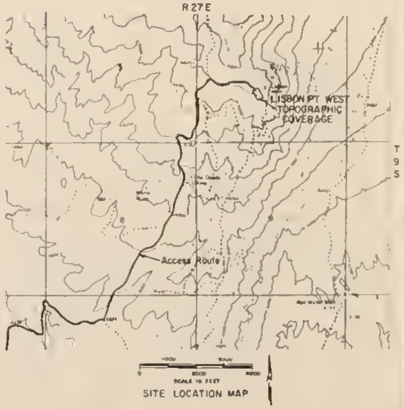


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LEGEND

CONTOUR	*PICTURE NUMBER AND ORIENTATION*
WASTE DUMP	*UNDERGROUND MINE WORKINGS*
DRAINAGE	*OPEN ADIT*

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E. MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

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SITE PLAN AND GENERAL LAYOUT

LISBON POINT WEST SITE
SECTION 4, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: OLO
CHECKED BY:
APPROVED BY:

NO	DATE	BY

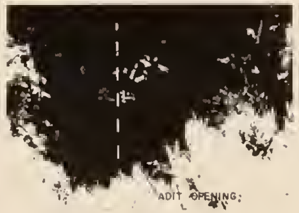
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

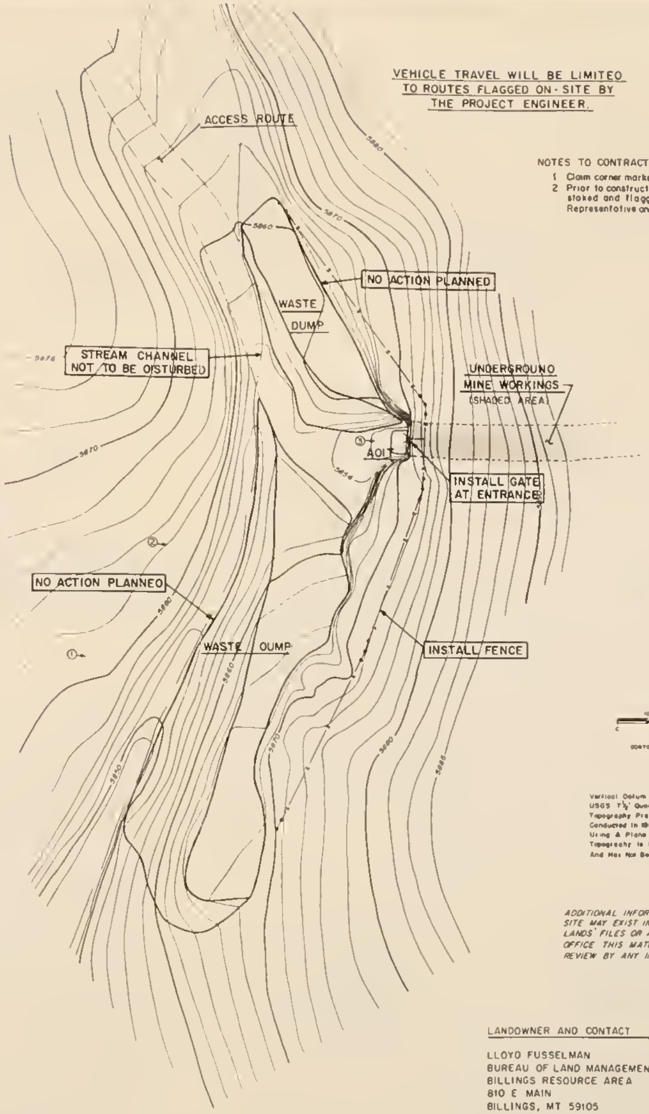
CONSTRUCTION SITE PLAN, SHEET 10

① PICTURE 1 SHOWS A PORTION OF THE WASTE DUMP.

② PICTURE 2 SHOWS THE ADIT OPENING AND A PORTION OF THE WASTE DUMP.



③ PICTURE 3 SHOWS THE ADIT OPENING



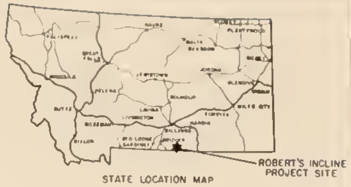
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

NOTES TO CONTRACTOR:

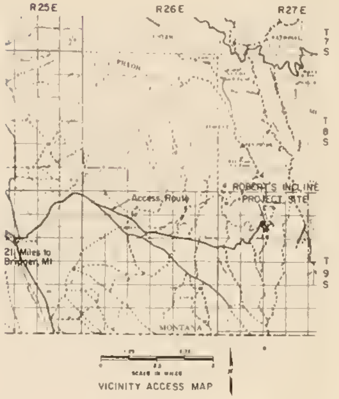
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

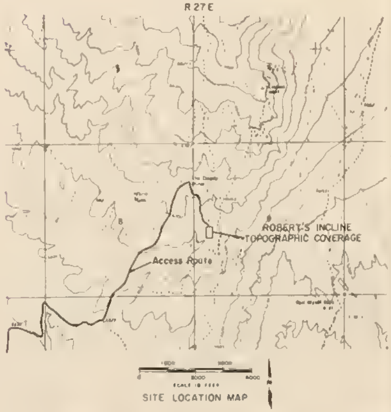
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

LEGEND

—5825—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
◯	*WASTE DUMP*	- - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

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SITE PLAN AND GENERAL LAYOUT

ROBERT'S INCLINE SITE
SECTION 9, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLD
CHECKED BY:
APPROVED BY:
REVISIONS NO DATE BY

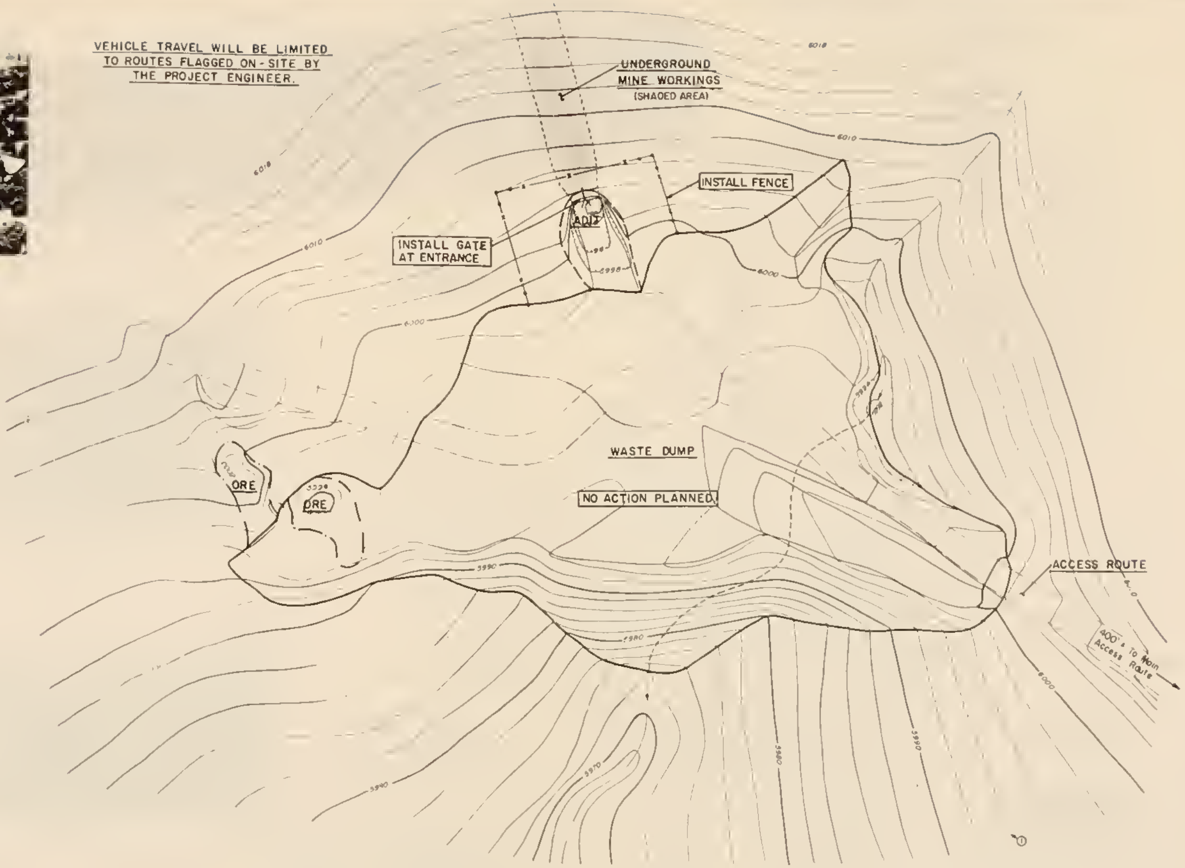
SPECTRUM ENGINEERING
Mining and Civil Engineers
5302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 11

① PICTURE 1 SHOWS THE OPEN ADIT AND THE WASTE DUMP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



LEGEND

- CONTOUR
- WASTE DUMP
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

NOTES TO CONTRACTOR

1. Claim corner markers are not to be disturbed
2. Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - RED PRYOR MTN. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
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BILLINGS, MT 59102
PHONE (406) 252-1438

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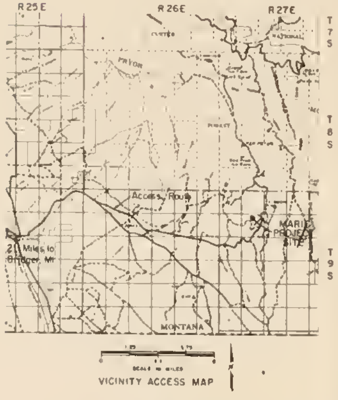
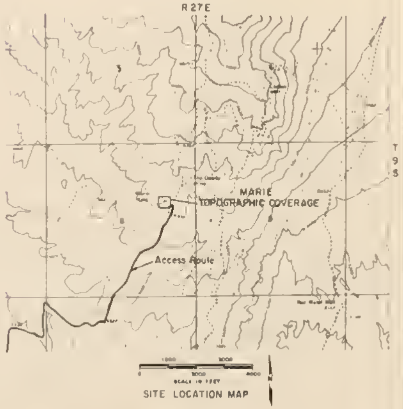
STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

MARIE SITE
SECTION 8, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLD
CHECKED BY:
APPROVED BY:
REVISIONS NO DATE BY

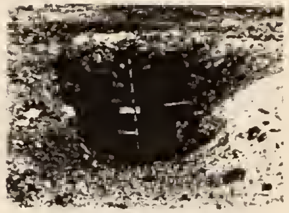
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 12

① PICTURE 1 SHOWS A PORTION OF WASTE DUMP 1

② PICTURE 2 SHOWS THE ADIT OPENING, WASTE DUMP 2, EXCAVATED PIT 1, AND THE ACCESS ROAD.

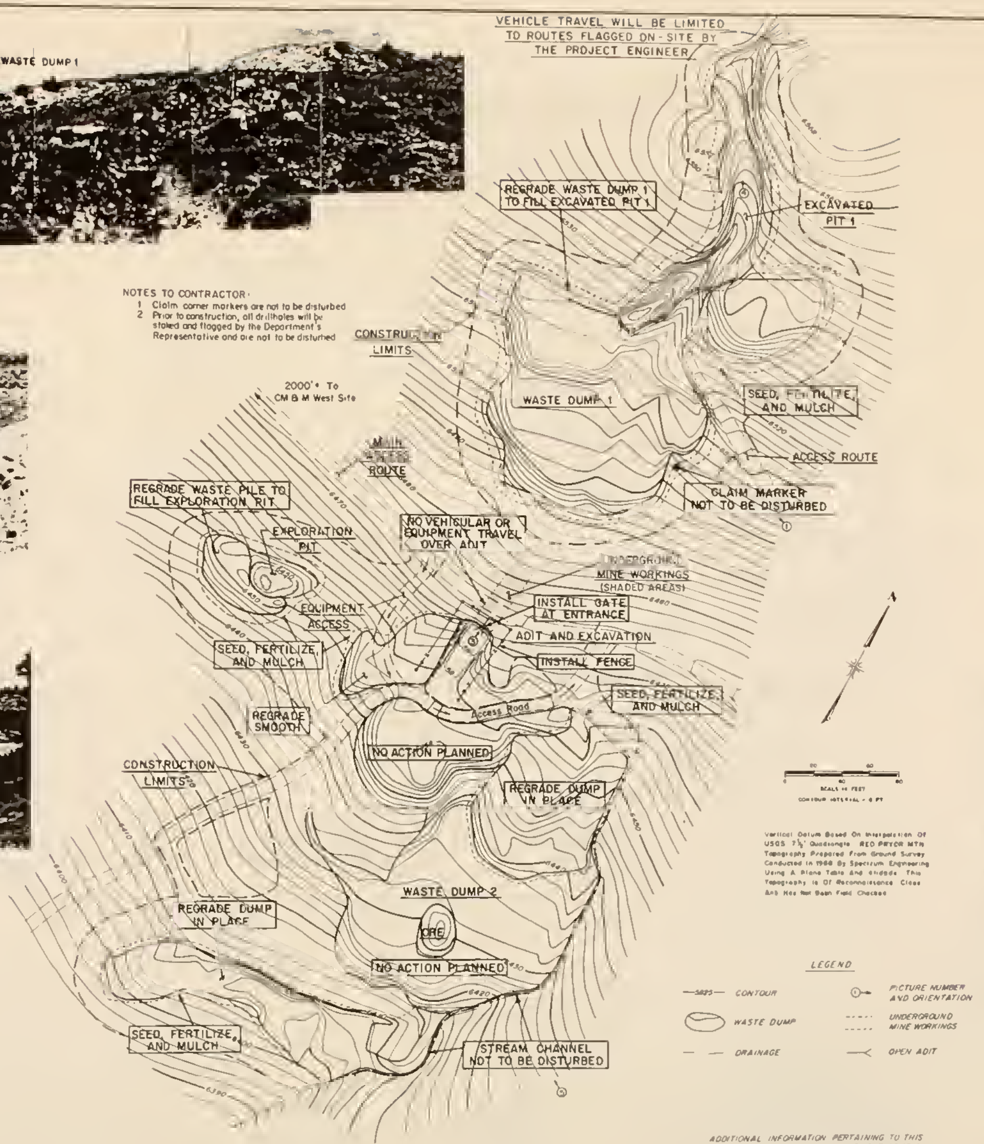


③ PICTURE 3 SHOWS THE ADIT OPENING.

④ PICTURE 4 SHOWS A PORTION OF EXCAVATED PIT 1

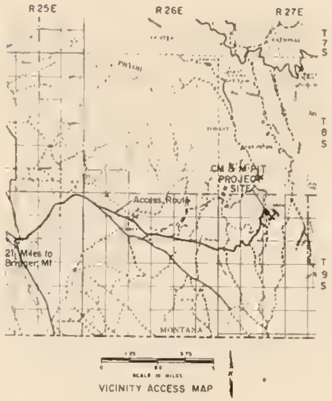
⑤ PICTURE 5 SHOWS WASTE DUMP 2.

NOTES TO CONTRACTOR:
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

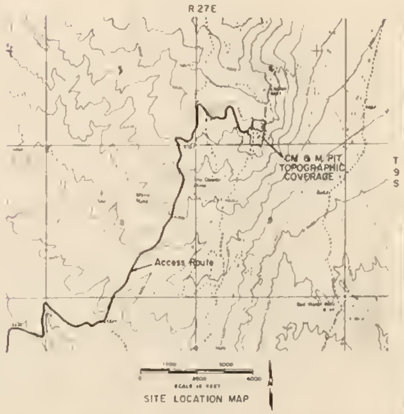

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER
REGRADE WASTE DUMP 1 TO FILL EXCAVATED PIT 1
EXCAVATED PIT 1
CONSTRUCTION LIMITS
WASTE DUMP 1
SEED, FERTILIZE, AND MULCH
ACCESS ROUTE
CLAIM MARKER NOT TO BE DISTURBED
2000'± To CM & M West Site
MAIN ACCESS ROUTE
REGRADE WASTE PILE TO FILL EXPLORATION PIT
EXPLORATION PIT
NO VEHICULAR OR EQUIPMENT TRAVEL OVER ADIT
UNDERGROUND MINE WORKINGS (SHADED AREAS)
INSTALL GATE AT ENTRANCE
EQUIPMENT ACCESS
ADIT AND EXCAVATION
INSTALL FENCE
SEED, FERTILIZE, AND MULCH
SEED, FERTILIZE, AND MULCH
Access Road
REGRADE SMOOTH
NO ACTION PLANNED
REGRADE DUMP IN PLACE
CONSTRUCTION LIMITS
WASTE DUMP 2
ORE
REGRADE DUMP IN PLACE
NO ACTION PLANNED
SEED, FERTILIZE, AND MULCH
STREAM CHANNEL NOT TO BE DISTURBED
SCALE IN FEET
LEGEND
CONTOUR
WASTE DUMP
DRAINAGE
PICTURE NUMBER AND ORIENTATION
UNDERGROUND MINE WORKINGS
OPEN ADIT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

SITE PLAN AND GENERAL LAYOUT

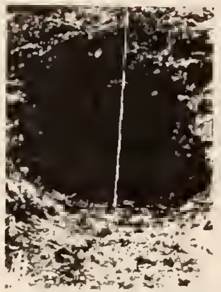
CM & M PIT SITE
SECTION 4, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE October 1988
DRAWN BY OLO
CHECKED BY
APPROVED BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1



① PICTURE 1 SHOWS THE ADIT OPENING

② PICTURE 2 SHOWS THE SHAFT OPENING

③ PICTURE 3 SHOWS WASTE DUMP 1 AND WASTE DUMP 2

④ PICTURE 4 SHOWS THE COLLAPSED ADIT.

VEHICLE TRAVEL WILL BE LIMITED
TO ROUTES FLAGGED ON-SITE BY
THE PROJECT ENGINEER.

NOTES TO CONTRACTORS:

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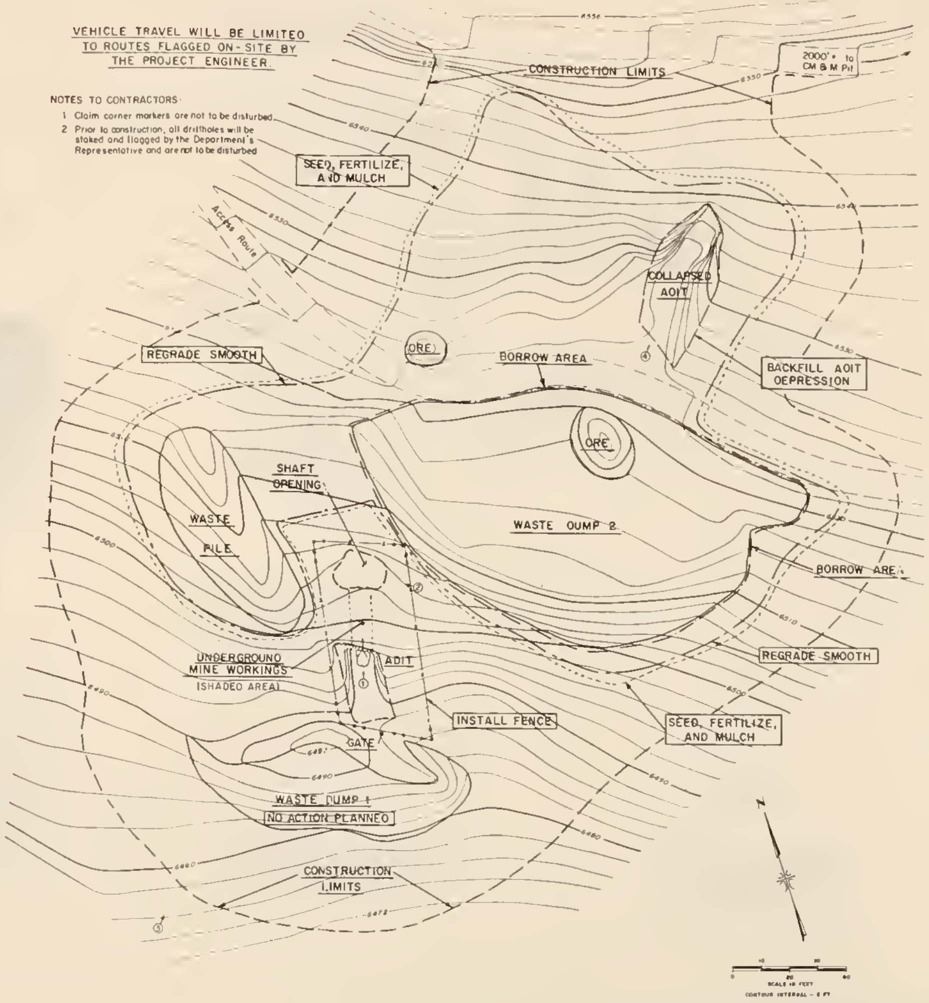
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed.



Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class and Has Not Been Field Checked

LEGEND

—3825—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
⬭	WASTE DUMP	- - - -	UNDERGROUND MINE WORKINGS
— —	DRAINAGE	—<	OPEN ADIT

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LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

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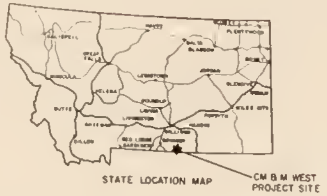
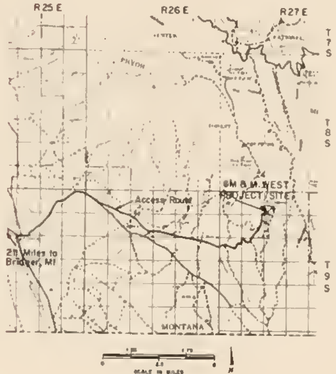
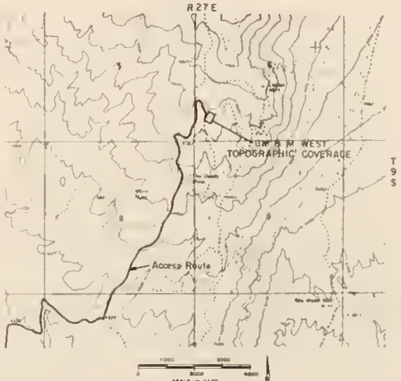


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

CM & M WEST SITE
SECTION 4, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

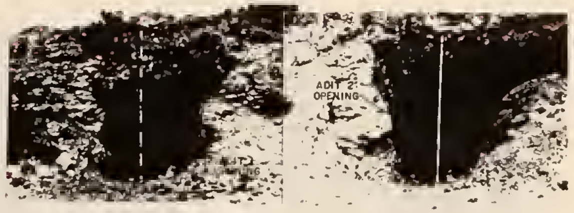
DATE October 1988
DRAWN BY: DLD
CHECKED BY:
APPROVED BY:
REVISIONS NO DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

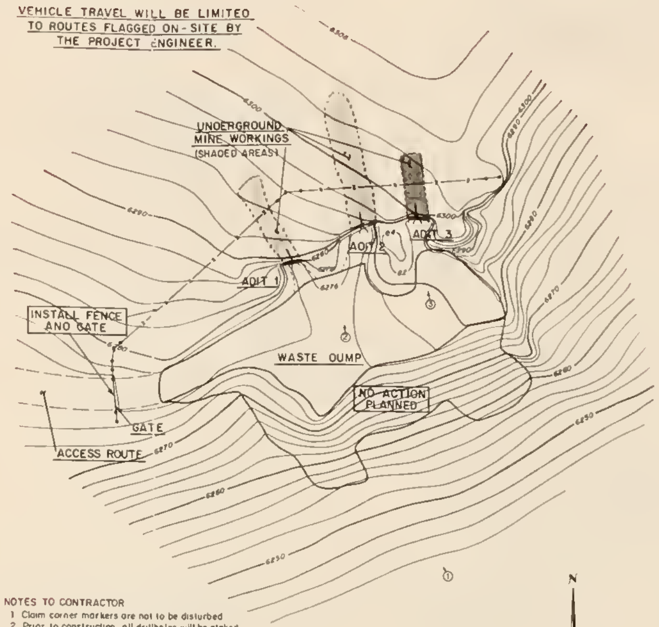
CONSTRUCTION SITE PLAN, SHEET 14

① PICTURE 1 SHOWS ADIT 1, ADIT 2, ADIT 3 AND THE WASTE DUMP



② PICTURE 2 SHOWS ADIT 1 OPENING AND ADIT 2 OPENING

③ PICTURE 3 SHOWS ADIT 3 OPENING


VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
UNDERGROUND MINE WORKINGS (SHADED AREAS)
ADIT 1
ADIT 2
ADIT 3
INSTALL FENCE AND GATE
WASTE DUMP
NO ACTION PLANNED
GATE
ACCESS ROUTE
6300
6290
6280
6270
6260
6250
①
②
③

NOTES TO CONTRACTOR
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

LEGEND

—5825—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

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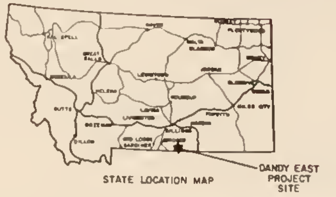
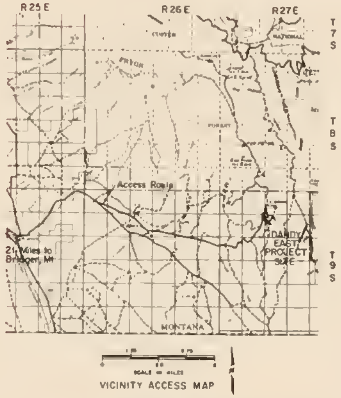
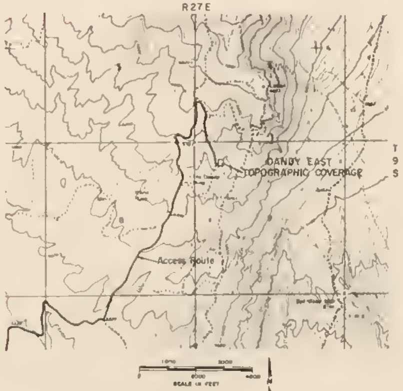
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: BED PRYOR MTN. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

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SITE PLAN AND GENERAL LAYOUT

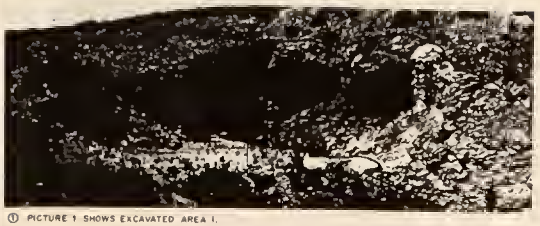
DANDY EAST SITE
SECTION 9, T 9 S, R 27 E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE October 1988
DRAWN BY DLD
CHECKED BY
APPROVED BY
REVISIONS NO DATE BY

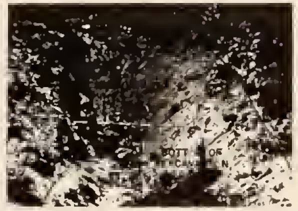
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1



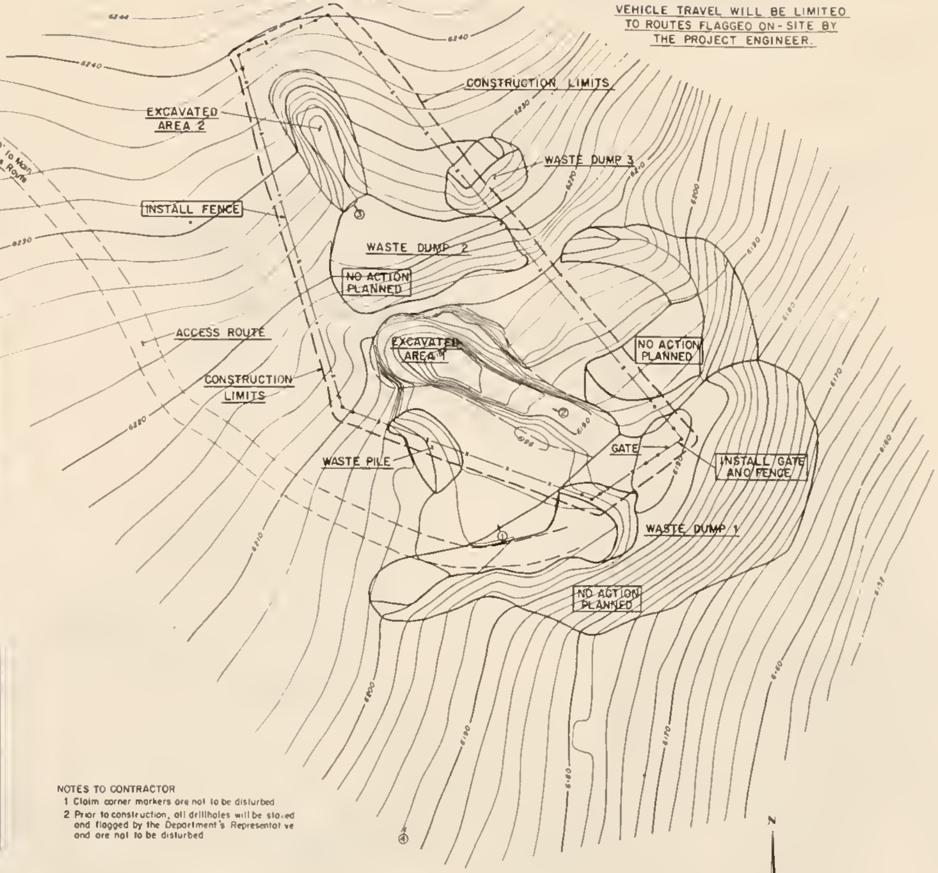
① PICTURE 1 SHOWS EXCAVATED AREA 1.

② PICTURE 2 SHOWS EXCAVATED AREA 1



③ PICTURE 3 SHOWS EXCAVATED AREA 2

④ PICTURE 4 SHOWS WASTE DUMP 1, WASTE DUMP 2, AND WASTE DUMP 3



VEHICLE TRAVEL WILL BE LIMITED
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THE PROJECT ENGINEER.

NOTES TO CONTRACTOR

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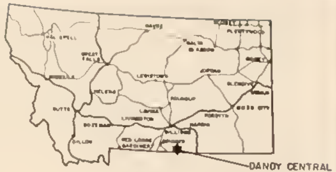
LEGEND

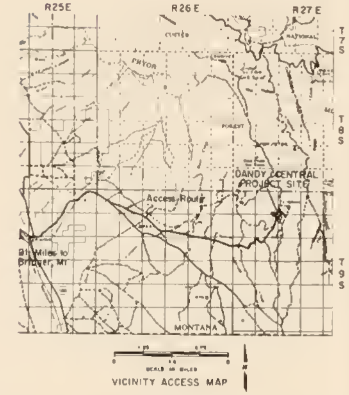
—5825—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
⬭	WASTE DUMP	- - - - -	UNDERGROUND MINE WORKINGS
— —	DRAINAGE	—<	OPEN ADIT

N

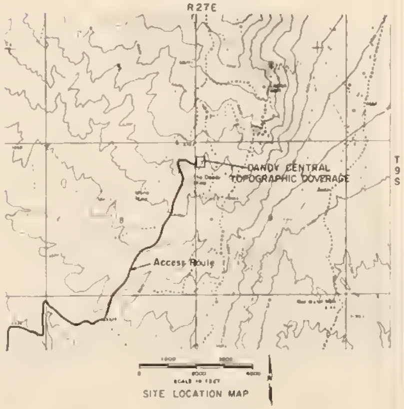
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - RED PRYOR MTN Topography Prepared From Ground Survey Conducted in 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

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NOTICE

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SITE PLAN AND GENERAL LAYOUT

DANDY CENTRAL SITE
SECTION 8 & 9, T9S, R27E
CARBON COUNTY, MONTANA

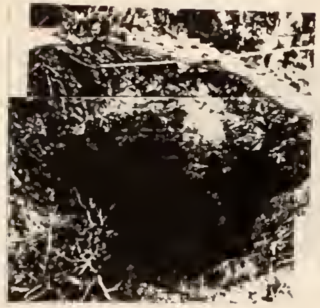
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE October 1988
DRAWN BY DLD
CHECKED BY
APPROVED BY
REVISIONS NO DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

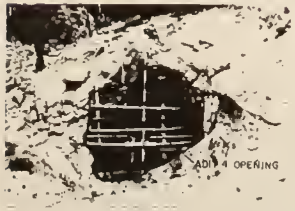
SHEET NO 1 of 1

① PICTURE 1 SHOWS SHAFT 1



② PICTURE 2 SHOWS SHAFT 2

③ PICTURE 3 SHOWS THE ADIT 5 OPENING



④ PICTURE 4 SHOWS THE ADIT 4 OPENING

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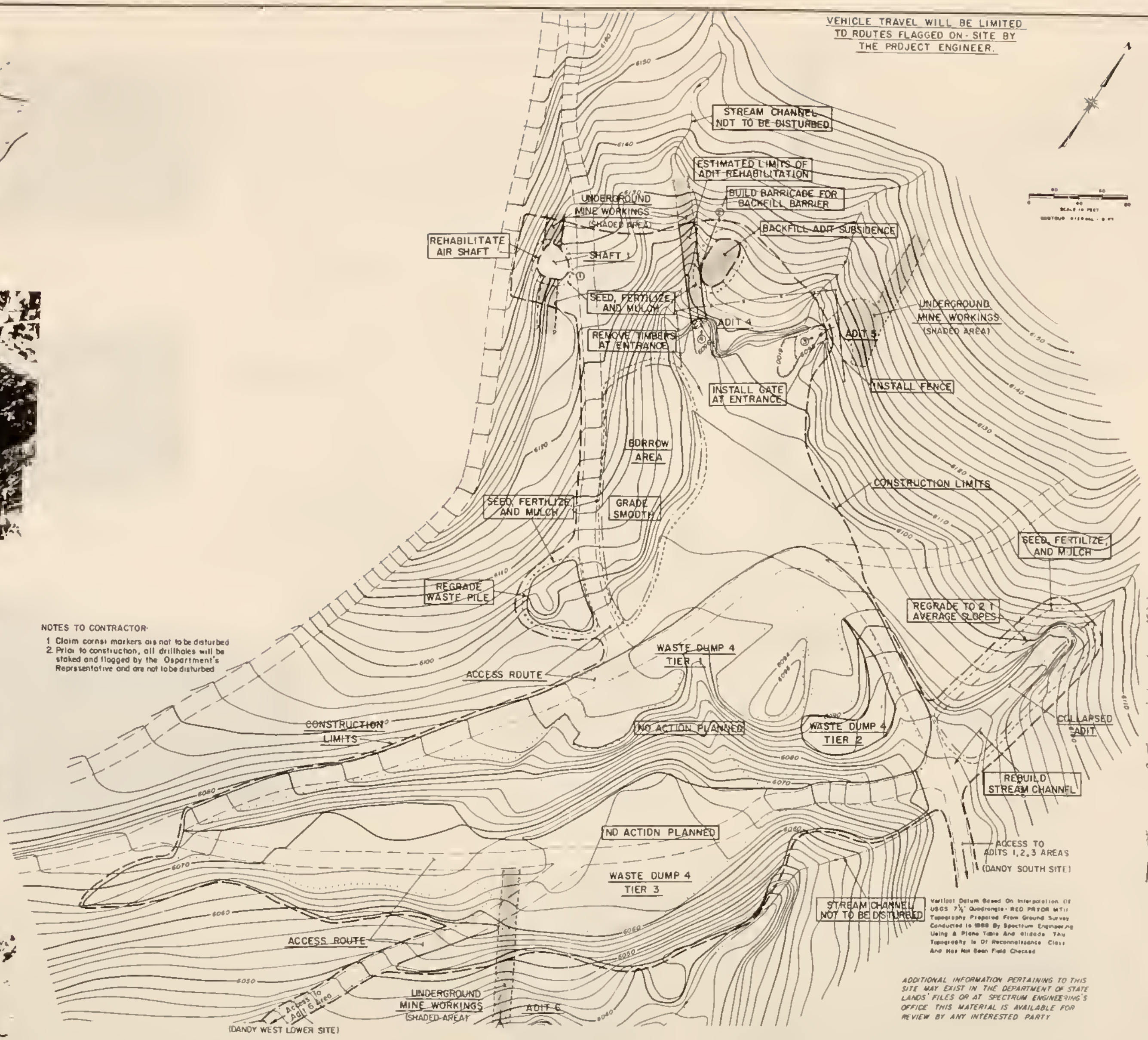
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
STREAM CHANNEL NOT TO BE DISTURBED
ESTIMATED LIMITS OF ADIT REHABILITATION
BUILD BARRICADE FOR BACKFILL BARRIER
UNDERGROUND MINE WORKINGS (SHADED AREA)
REHABILITATE AIR SHAFT
BACKFILL ADIT SUBSIDENCE
SHAFT 1
SEED, FERTILIZE, AND MULCH
ADIT 4
REMOVE TIMBERS AT ENTRANCE
ADIT 5
UNDERGROUND MINE WORKINGS (SHADED AREA)
INSTALL GATE AT ENTRANCE
INSTALL FENCE
BORROW AREA
CONSTRUCTION LIMITS
SEED, FERTILIZE AND MULCH
GRADE SMOOTH
SEED, FERTILIZE, AND MULCH
REGRADE WASTE PILE
REGRADE TO 2:1 AVERAGE SLOPES
WASTE DUMP 4 TIER 1
ACCESS ROUTE
CONSTRUCTION LIMITS
NO ACTION PLANNED
WASTE DUMP 4 TIER 2
COLLAPSED ADIT
REBUILD STREAM CHANNEL
NO ACTION PLANNED
ACCESS TO ADITS 1,2,3 AREAS (DANDY SOUTH SITE)
WASTE DUMP 4 TIER 3
STREAM CHANNEL NOT TO BE DISTURBED
ACCESS ROUTE
UNDERGROUND MINE WORKINGS (SHADED AREA)
ADIT 6
Access to Adit 6 Area
(DANDY WEST LOWER SITE)
6150
6140
6130
6120
6110
6100
6090
6080
6070
6060
6050
6040
SCALE IN FEET
CONTOUR INTERVAL - 2 FT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

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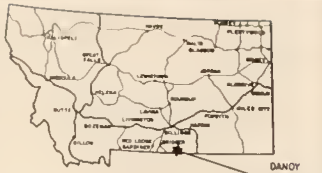
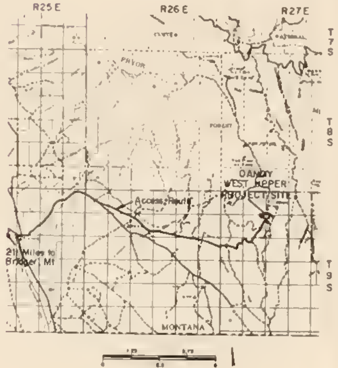
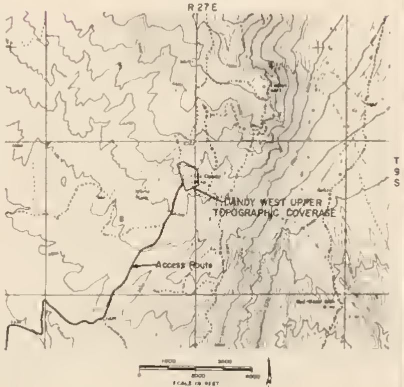


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LEGEND

—5825—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	- - - -	*UNDERGROUND MINE WORKINGS*
— —	*DRAINAGE*	—<	*OPEN ADIT*

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
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SITE PLAN AND GENERAL LAYOUT

DANDY WEST UPPER SITE
SECTIONS 8 & 9, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

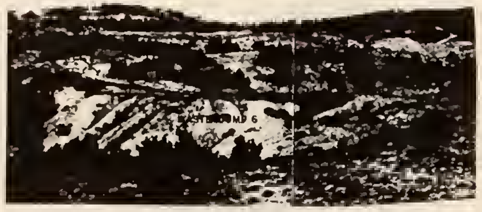
DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

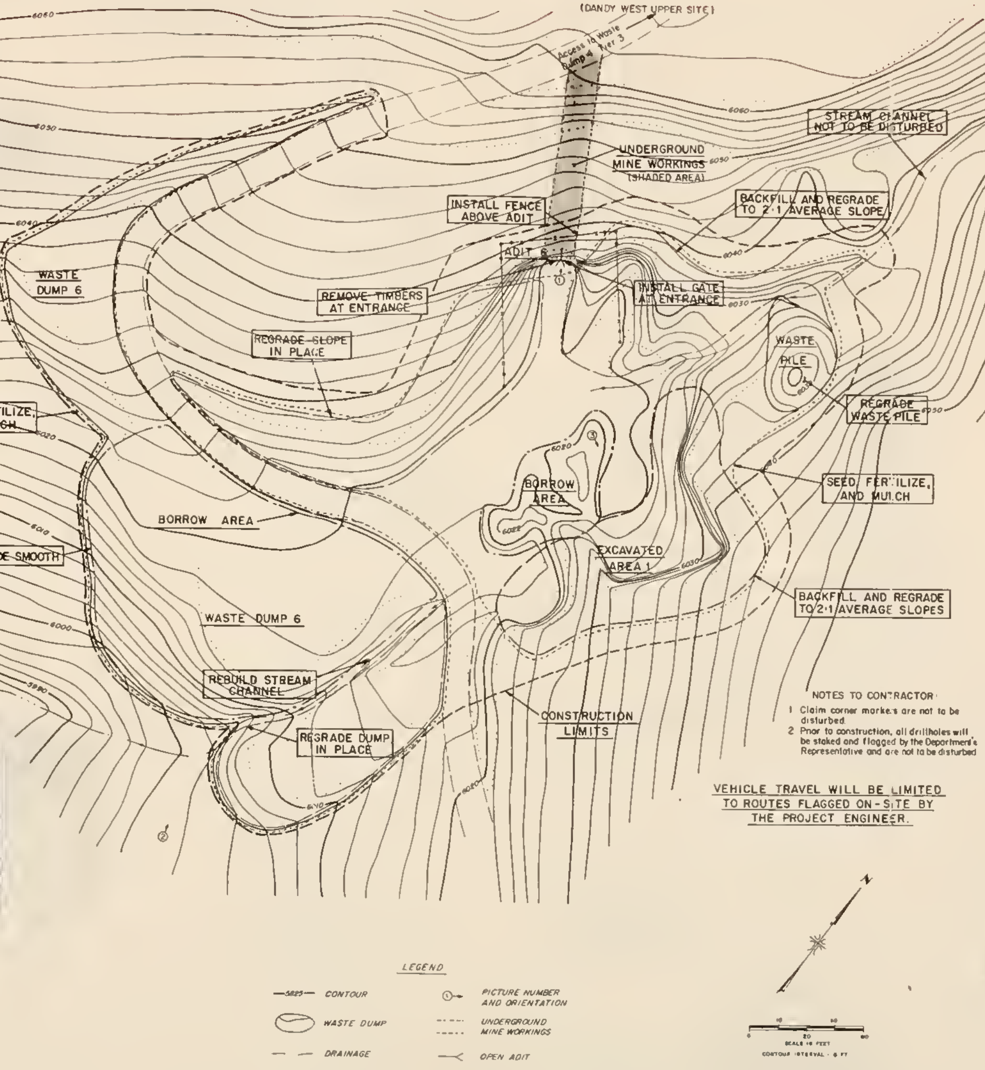
CONSTRUCTION SITE PLAN, SHEET 17

① PICTURE 1 SHOWS THE ADIT 6 OPENING.



② PICTURE 2 SHOWS WASTE DUMP 6, ADIT 6, AND THE ACCESS ROUTE

③ PICTURE 3 SHOWS EXCAVATED AREA 1



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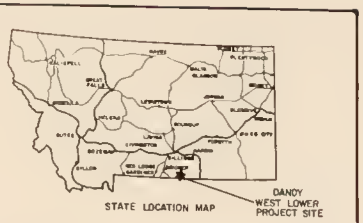
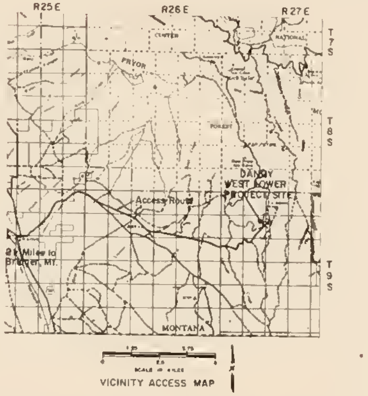
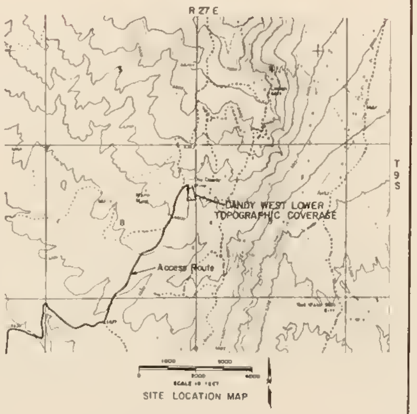


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - RED PRYOR MTN. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

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SITE PLAN AND GENERAL LAYOUT

DANDY WEST LOWER SITE
SECTION 8, T9S, R27E
CARBON COUNTY, MONTANA

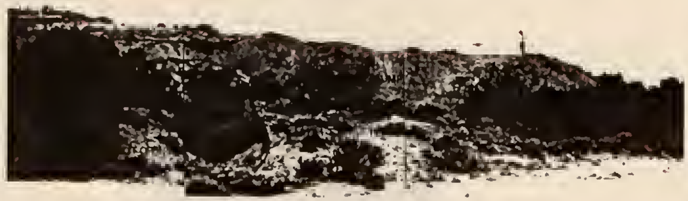
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:
REVISIONS NO DATE BY

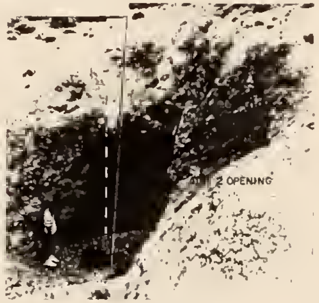
SPECTRUM ENGINEERING
Mining and Civil Engineers
5302 6th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 18

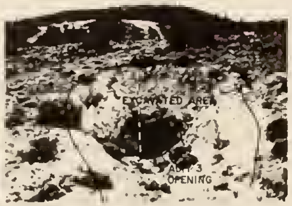


① PICTURE 1 SHOWS THE ADIT 1 OPENING AND EXCAVATION THE PICTURE ALSO SHOWS WASTE DUMP 2



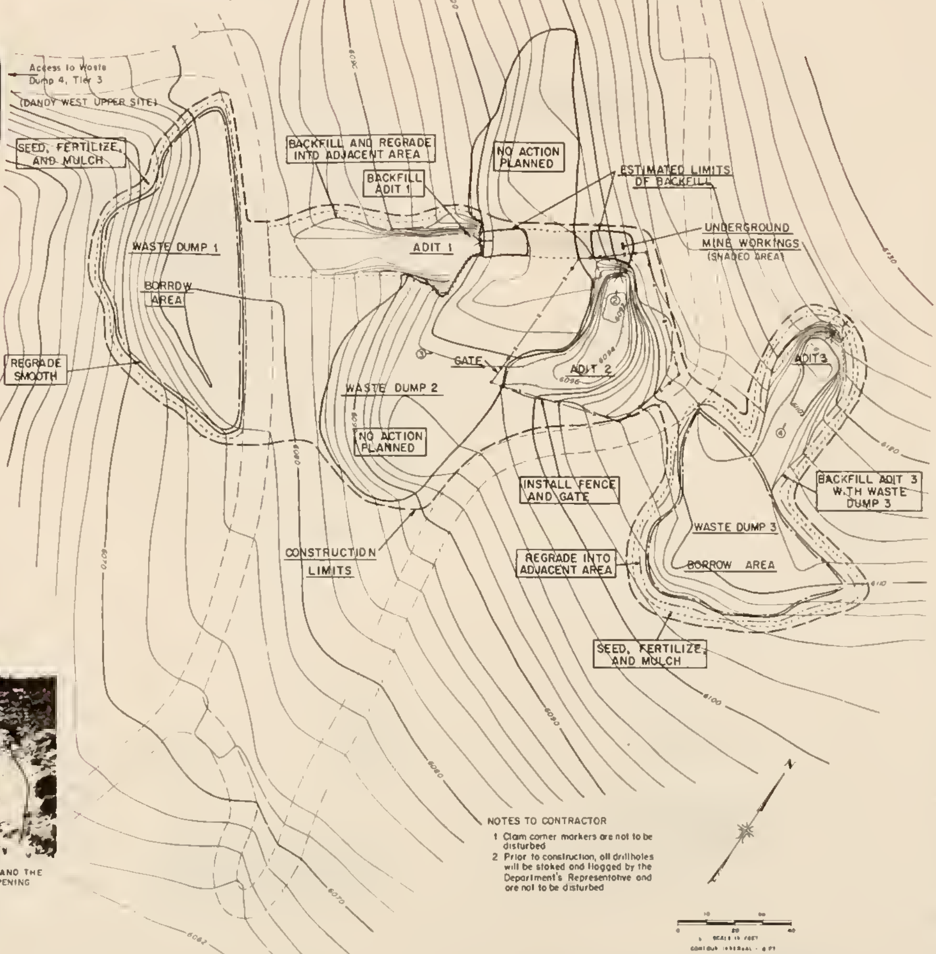
② PICTURE 2 SHOWS THE ADIT 2 OPENING.

③ PICTURE 3 SHOWS THE EXCAVATED AREA ADJACENT TO THE ADIT 2 OPENING THE ACCESS ROUTE TO ADIT 3 IS SHOWN IN THE BACKGROUND.



④ PICTURE 4 SHOWS THE ADIT 3 OPENING AND THE EXCAVATED AREA ADJACENT TO THE OPENING

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

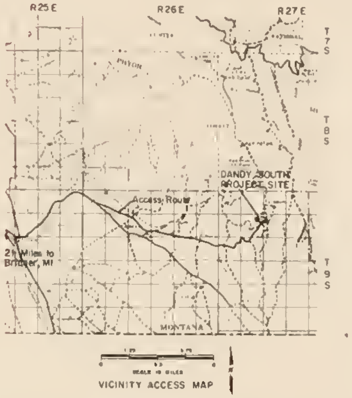


NOTES TO CONTRACTOR

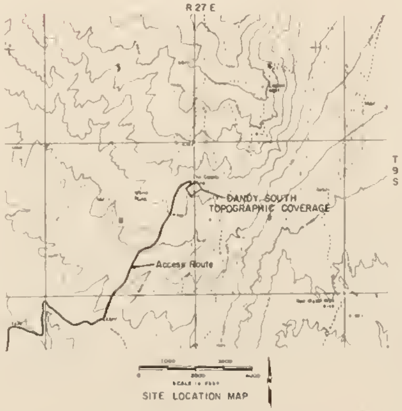
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

Vertical Datum Based On Interpretation Of USGS 7½' Quadrangle RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LEGEND

—5825—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
⬭	WASTE DUMP	- - - - -	UNDERGROUND MINE WORKINGS
— —	DRAINAGE	—<	OPEN ADIT

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LANDOWNER AND CONTACT

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E MAIN
BILLINGS, MT 59105
PHONE (406) 657-5262

MINERAL LESSEE

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

SITE PLAN AND GENERAL LAYOUT

DANDY SOUTH SITE
SECTIONS 8 & 9, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY
REVISIONS NO DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3306 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 19

① PICTURE 1 SHOWS THE ADIT OPENING AND THE WASTE DUMP.

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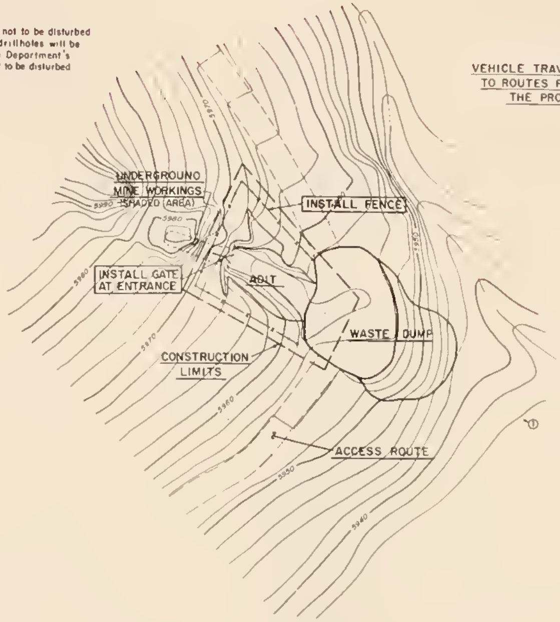
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER



SCALE IN FEET

CONTOUR INTERVAL - 5 FT

LEGEND

- ——5825—— *CONTOUR*
- ⬭ *WASTE DUMP*
- — — *DRAINAGE*
- ①→ *PICTURE NUMBER AND ORIENTATION*
- - - - - *UNDERGROUND MINE WORKINGS*
- —< *OPEN ADIT*

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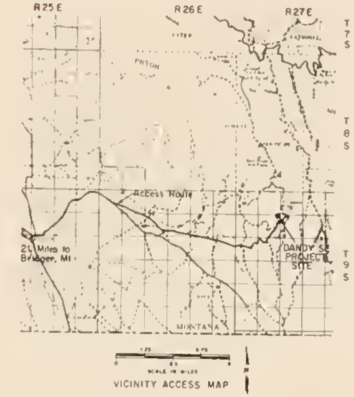
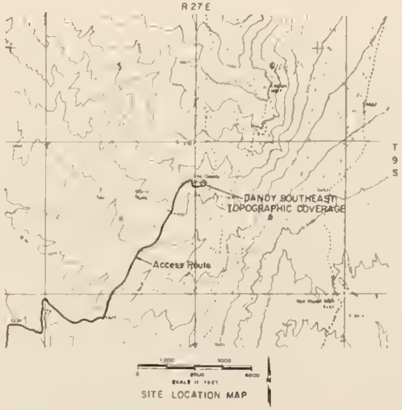
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

STATE LOCATION MAP



VICINITY ACCESS MAP



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SHEET NO 1 of 1

CONSTRUCTION SITE PLAN, SHEET 20